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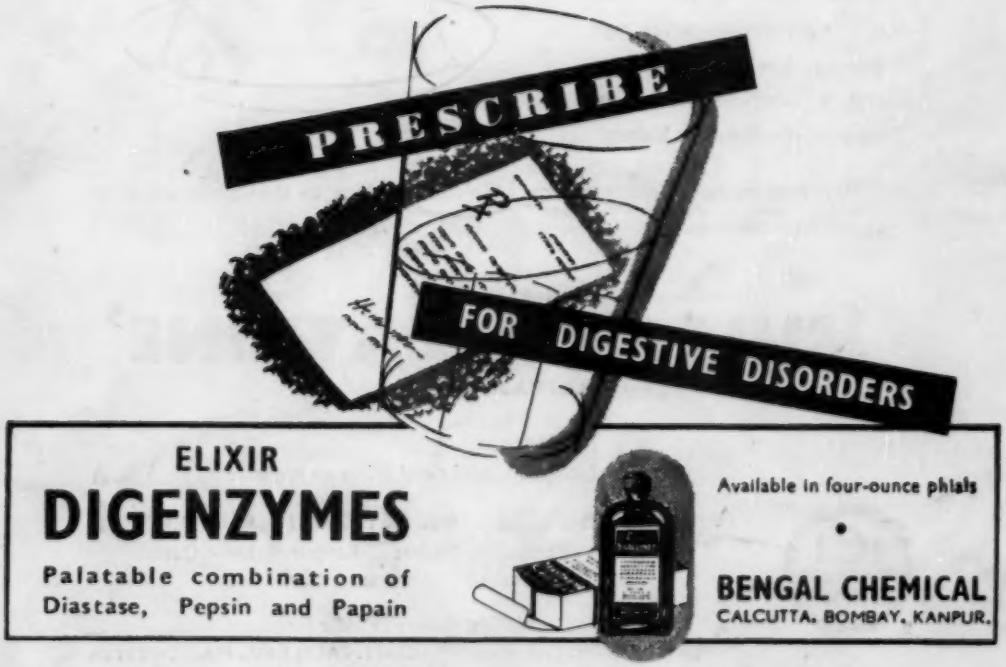

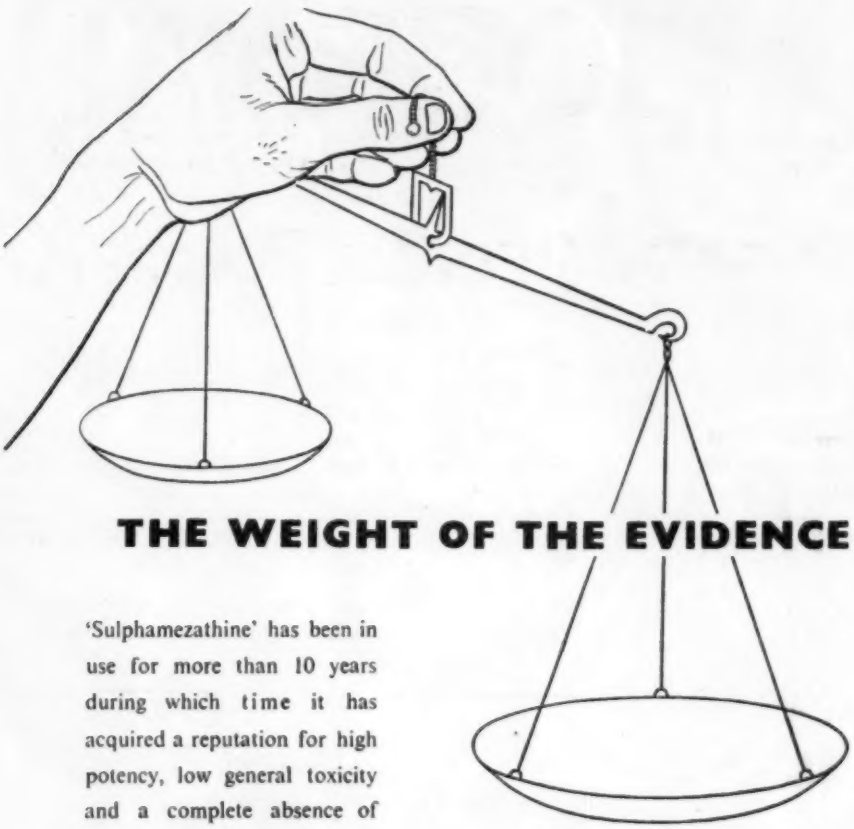

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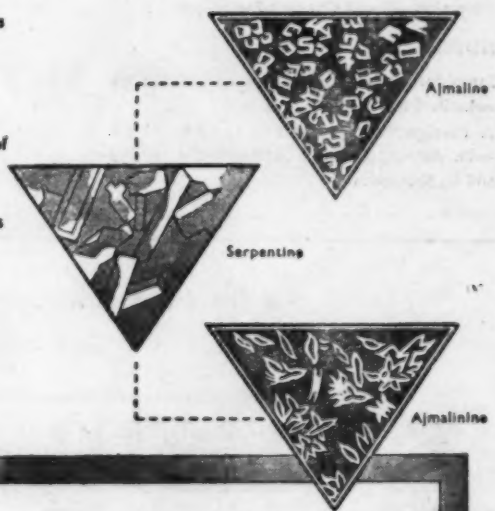

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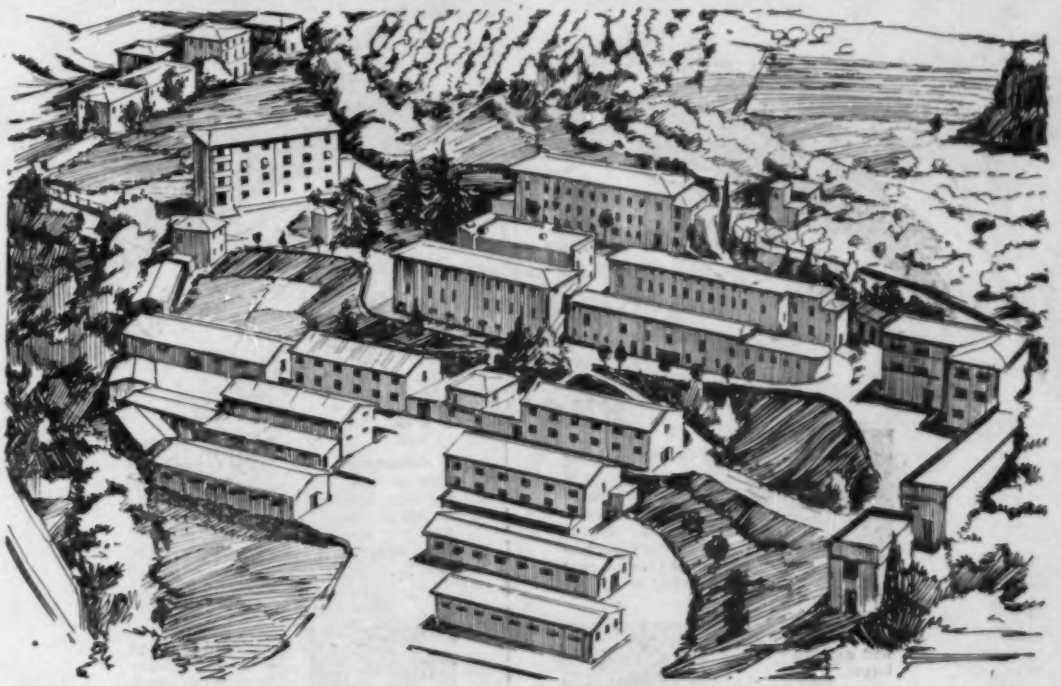

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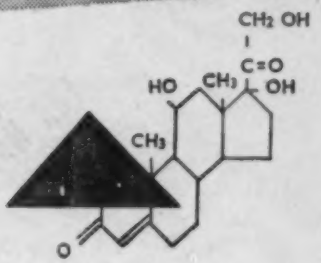

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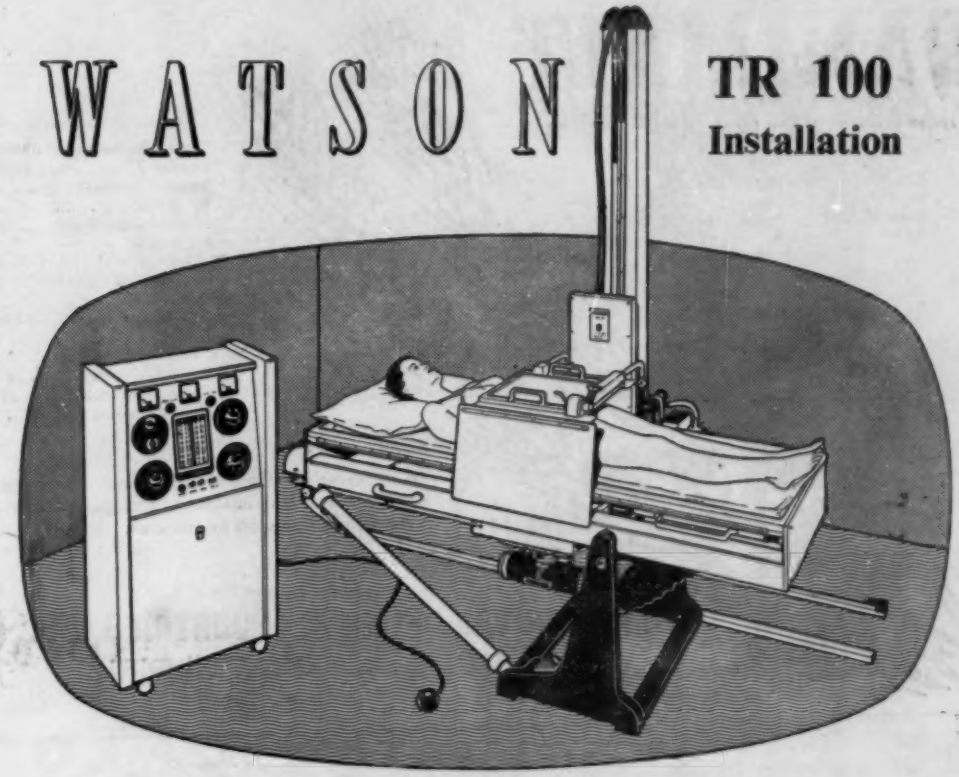

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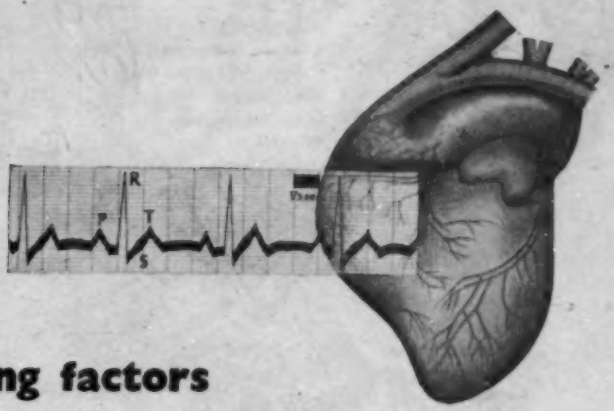

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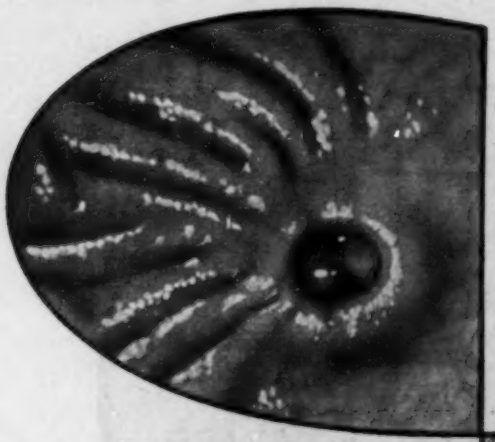

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S. N. SEN GUPTA, M.B., M.R.C.P. (EDIN.),

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With increased use of diuretics in the treatment of conditions associated with fluid and salt retention in the body, the need of an oral diuretic has long been felt. Oral diuretics, mercurial and non-mercurial are now available. Of these, the non-mercurial diuretic acetazoleamide is a sulphonamide derivative. Its discovery was based on the observation that administration of sulphonamide produces a hyperchloraemic acidosis (Southeworth, 1937) and alkaline urine with increased excretion of cations (Marshall *et al*, 1938). The mechanism involved is inhibition of the enzyme carbonic anhydrase in the kidneys (Mann and Keilin, 1940 ; Davenport and Wilhelmi, 1941 ; Hober, 1942). This enzyme normally accelerates conversion of CO_2 and H_2O into H_2CO_3 which ionises into H^+ and HCO_3^- ($H_2CO_3 \overset{c.a.}{\rightleftharpoons} H^+ + HCO_3^-$). The free H^+ ion also facilitates ammonia mechanism, thus helping further the conservation of electrolytes.

When the enzyme is inactivated these mechanisms fail and electrolytes are excreted. The free excretion of electrolytes causes an obligatory osmotic diuresis. The diuresis, thus brought about, necessitates elimination of bicarbonate in urine. The consequent reduction of plasma bicarbonate produces a state of hyperchloraemic acidosis and the process is thus self-limiting after a time (*Lancet*, 1955).

Acetazoleamide is rapidly absorbed when given by the mouth and is excreted slowly in the urine. It is found to have very few side effects like paraesthesia and drowsiness in therapeutic doses. Drowsiness and deep sleep have been noticed but serious symptoms like disorientation and psychosis are extremely rare and said to be reversible. The latter are found particularly in patients with hepatic cirrhosis.

The drug has been used in different diseases in different parts of the world with generally good results. Our experience with it is limited. But in view of unexpected result in two cases we thought it worth while publishing this small series of seven cases. Of these cases, five had cardiac failure of varied aetiology, one had hepatic cirrhosis and the other nutritional oedema.

CASE REPORTS

Case 1—A female of 25, had a miscarriage in the 8th month of her 3rd pregnancy six months before admission. During the last month of pregnancy she developed puffiness of the face, oedema of the legs, oliguria and headache but never had convulsions. After miscarriage she started having dyspnoea on accustomed

efforts which progressively increased with deterioration of other symptoms. Positive physical findings on admission included anasarca (with ascites), moderate anaemia, tachycardia and signs of cardiac failure. B.P.—200/145 mm. Hg., cardiac apex in the 5th left interspace just outside the midclavicular line with left ventricular impulse, aortic 2nd sound accentuated and a soft systolic murmur in the pulmonary area. There were some rales at the bases of lungs and spleen and palpable about 1 inch below the costal margin. Ocular fundi were normal. E.C.G. showed left ventricular enlargement and strain. There was a trace of albumen in urine but no blood corpuscles or casts. Blood urea was 35 mg. per cent and N.P.N. 30 mg. per cent and the blood count was within normal limits except slight anaemia.

The patient was diagnosed as a case of hypertensive cardiac failure and was treated with rest, low fluid intake (2 pints daily), restricted salt diet (cooked and served without added salt) and acetazoleamide 1 tablet (250 mg.) daily. No hypotensive drug was used. There was a satisfactory diuresis, the output exceeding intake by over two pints. The oedema and other signs of failure quickly disappeared and B.P. came down to 140/90 mm. Hg. in course of two weeks.

Case 2—A boy of 11, came with a history of gradually developing dyspnoea on exertion for 4 months to which was added, one month later, an unproductive cough. About a fortnight before admission he noticed a progressive swelling of the feet and legs. There was no history of rheumatic fever. The patient was moderately anaemic and had engorged and pulsatile neck veins, soft palpable liver 2½ inches below the costal margin, and anasarca. The pulse was 116 per minute and regular, B.P. was 90/60 mm. Hg. There was a left ventricular type of apical impulse in the 5th left interspace on the anterior axillary line together with a right ventricular precordial heave. The heart sounds were within normal limits. There was a localised rough systolic murmur in the 4th space just medial to the apical impulse and a parasternal gallop. The most remarkable feature of this murmur was that it was quite loud on some days and completely inaudible on others. There were some crepitations at the lung bases. Other systems clinically normal. He had low grade pyrexia (99°—100·6°F).

Hb.—11 g. per cent, R.B.C.—3·2 million/c.mm., W.B.C.—6900/c.mm. with 76 per cent neutrophils; E.S.R.—8 mm. (Westergren). No albumen, casts or blood cells in the urine. Blood urea—26 mg. per cent. Blood culture was sterile on two occasions. Widal—negative. Blood W.R. and Kahn test—negative. X-ray showed a left ventricular enlargement. E.C.G. showed marked left ventricular preponderance with strain. The cause of the heart failure remained obscure.

The patient was put to bed and treated with ferrous sulphate, low fluid intake (2 pints), a salt restricted diet, penicillin, digitoxin and a parenteral mercurial diuretic, without any effect whatsoever. Under digitalis therapy the patient developed auricular fibrillation with occasional ventricular extrasystoles necessitating its withdrawal. He was then given acetazoleamide ½ tablet (125 mg.) daily with remarkable increase in urinary output which was about three pints over intake at the beginning. But this effect was not maintained for long and after two weeks the output was only just nearly a pint over intake. There was, however, no improvement in the patient's clinical condition and he was taken away by his parents.

Case 3—A girl of 11, who gave no history of rheumatic fever in the past, complained of pain in the legs on walking about and frequent attacks of nocturnal dyspnoea, orthopnoea and productive cough with copius frothy blood stained expectoration on several occasions, for about three months before admission. She was admitted with evidence of the right ventricular failure, viz., engorged neck veins and enlarged liver but without pitting oedema. The pulse was 120 per minute and regular; B.P.—140/95 mm. Hg. The cardiac apex was in the left 5th interspace on the anterior axillary line and was left ventricular in character. The aortic 2nd sound was accentuated with no murmur. There was no palpable pulsation of the arteries of the lower extremities and the abdominal aorta. A continuous murmur was present between the ensiform and the umbilicus. The examination of the other systems was normal except for a few moist sounds at the bases of the lungs. The blood count was normal and the urine was free of albumen, casts and blood corpuscles. Blood urea was 20 mg. per cent and N.P.N. 24 mg. per cent. Venous pressure was 16 cm. of blood. The skiagram and E.C.G. showed evidence of left ventricular enlargement. Diagnosis of the coarctation of the aorta was made.

She was treated with rest, restricted fluid and salt, and digitalis without improvement in the physical signs, although she was symptom-free since admission. Digitalis seemed only to reduce the pulse rate. Acetazoleamide was tried ½ tablet (125 mg.) daily with slight increase in output (by about 10 oz.) and no improvement in the clinical condition. Subsequent use of parenteral mercurial diuretic produced copious diuresis and some reduction in congestion.

Case 4—A woman of 23, was admitted with a history of gradually oncoming exertional dyspnoea, paroxysmal nocturnal dyspnoea and oedema of the dependent parts for about nine months. She had a puffy face, engorged neck veins, oedema of the legs, an enlarged liver (3" below the costal margin) with a little fluid in the abdomen. The pulse was 88 per minute and regular. B.P. was 130/90 mm. Hg. Cardiac impulse was in the 5th space in the midclavicular line with a right ventricular impulse. The first sound in the mitral area was short and sharp and the pulmonary 2nd sound accentuated. There was a clear mitral opening snap followed by a mid-diastolic and presystolic murmur. Plenty of moist sounds was present in the lung bases. The clinical examination of the systems revealed nothing abnormal. The obvious diagnosis of mitral stenosis with right ventricular failure was confirmed by E.C.G. and phonocardiography.

The usual regime of rest, salt-free diet and fluid restriction was instituted. Digitalis therapy could not be pursued long as every attempt was baffled by precordial discomfort and arrhythmias. She was given acetazoleamide one tablet (250 mg.) daily with fairly good result. The daily urinary output increased, on an average, by about one pint and a half over the fluid

intake. There was some reduction in the oedema although other evidences of failure persisted almost unchanged. Parenteral mercurial diuretic was tried later but produced similar results.

Case 5—A woman of 52 came with ascites and oedema of the lower limbs of two weeks' and 5 days' duration respectively. Past history was noncontributory. She was afebrile. A hard liver was palpable 1½" below the costal margin and the spleen was just palpable. There was some venous prominence over the abdominal wall and a prolapsed bleeding haemorrhoid. She was moderately anaemic and had no evidence of cardiac failure. Other systems were clinically normal. B.P. was 130/80 mm. Hg.; pulse was 92 per minute and regular.

Blood picture: Hb.—11 g. per cent; R.B.C.—3·5 million per c.mm.; W.B.C.—6,100 per c.mm.; Blood proteins—6·2 g. per cent, albumin—3·8 g. per cent, globulin —2·4 g. per cent; Blood urea—32 mg. per cent and N.P.N.—39·2 mg. per cent; E.S.R.—18 mm. (Westergren) in one hour. Peritoneal fluid—only a few lymphocytes per field; protein—2·41 g. per cent, no acid-fast bacilli grown on culture. Urine—normal. Diagnosis of cirrhosis of the liver was made.

Treatment consisted of the usual regime of restricted fluid intake and salt free diet and daily injection of liver extract 2 c.c. I.M. and parenteral mercurial diuretic. Only slight improvement was noticed in course of ten days and acetazoleamide 1 tablet (250 mg.) daily was substituted for mercurial diuretic. This induced a good diuresis (as much as 2½ pints over intake) and there was considerable reduction of ascites and oedema. The abdominal girth was reduced from 35" to 30" and the patient was feeling much better. On the 3rd day, however, she appeared to be disoriented and drowsy. Acetazoleamide was discontinued. But instead of improving, the patient gradually drifted into deep coma (6-3-55). Pupils were slightly contracted with sluggish reaction to light; fundus oculi normal; the neck was somewhat stiff; jerks diminished; plantar and superficial abdominal reflexes could not be elicited. There was no response to pinprick. Breathing was stertorous. There was no fresh physical signs in other systems. B.P. was 135/85 mm. Hg., pulse was 124 per minute and regular. Lumbar puncture showed clear fluid under moderate tension with protein—20 mg. per cent, glucose—60·6 mg. per cent and chlorides—600 mg. per cent. Other laboratory investigations did not show any significant difference from previous results till the 3rd day (9-3-55) after the episode when urine was found to contain sugar (+) but no acetone. Corresponding blood sugar level was 361 mg. per cent. The hyperglycaemia and glycosuria, however, cleared up spontaneously in two days' time. In the mean while the patient had several epileptiform convulsions (only one day) without any localising sign.

Nutrition was maintained with milk and glucose through a Ryle's tube. Additional therapy consisted of intramuscular penicillin 200,000 units 8 hourly and parenteral glucose and vitamin B_1 (100 mg. daily). The general condition somewhat improved after five days (11-3-55) of deep coma. The patient was responding to questions in a weak voice though still very much confused. She could even be fed by mouth. She had, however, no control over sphincters and developed several bedsores. Unfortunately the improvement was not maintained for long. The patient gradually drifted back to deep coma on 24-3-55 and expired on 31-3-55. There was great reduction of the oedema during the period of coma.

Lumbar puncture repeated twice did not show any appreciable change in C.S.F. Blood urea and N.P.N. were in the previous level and blood Na and K were 283 mg. per cent and 24 mg. per cent respectively. E.C.G. did not show evidence of any abnormal potassium level. Permission for a postmortem was refused.

Case 6—A man of 52, was admitted with a history of persistent diarrhoea and indigestion for four months followed by oedema and swelling of the abdomen for about a month. He was fairly anaemic, but not icteric and had stomatitis and glossitis. There was a large collection of fluid in the abdomen and the liver and spleen were not palpable. The face was puffy and legs oedematous. There was no evidence of cardiac failure. Pulse was 90 per minute and regular; B.P.—110/60 mm. Hg.; other systems clinically normal.

Laboratory investigations: Hb.—8·5 g. per cent (Sahli); R.B.C.—3 million per c.mm.; W.B.C.—6,000 per c.mm. Urine showed a trace of albumen without any other abnormality. Stools were yellow liquid without any microscopic abnormality. Blood proteins were 4·2 g. per cent with albumen 1·9 per cent and globulin 2·3 per cent.

He was diagnosed as a case of nutritional oedema and was kept in bed with usual restriction of fluid and salt. The treatment consisted of high protein diet, vitamins, ferrous sulphate and acetazoleamide one tablet (250 mg.) daily. This resulted in fairly good diuresis (output exceeding two pints over intake) and there was remarkable reduction of the oedema. On the third day of therapy, however, the patient was found to be very much confused and talking incoherently. There were several bouts of vomiting. He gradually became drowsy and passed into deep coma with complete loss of response to stimuli. There was loss of sphincter control; the neck was slightly stiff; pupils normal in size with normal reaction to light; fundus oculi normal. There was no evidence of paralysis. Deep reflexes were sluggish and the plantar response was flexor. No fresh physical signs appeared in other systems. Lumbar puncture drained a clear fluid under slightly raised tension.

Previous laboratory findings were almost unchanged. Examination of C.S.F. showed: cell—1 lymphocyte per c.mm., protein—25 mg. per cent, sugar—54 mg. per cent, chloride—740 mg. per cent. Blood chemistry: urea—42 mg. per cent, N.P.N.—42 mg. per cent, creatinine—2·5 mg. per cent, sodium—326 mg. per cent and potassium —14 mg. per cent. E.C.G. suggested hypopotassaemia.

Acetazoleamide was immediately withdrawn. The patient was fed with milk and glucose through a Ryle's tube and was given glucose, vitamin B_1 (100 g. daily) and ascorbic acid (150 mg. daily) parenterally. 4 g. of potassium chloride was given with daily feeds. His general condition persisted unchanged until the 8th day

when he responded to some questions though still confused. He could be fed by mouth for a couple of days after which, however, he drifted back to deep coma. He suddenly developed pulmonary oedema two days later and expired. Postmortem was not allowed.

Case 7—A man, aged 54, was admitted with dyspnoea and anasarca of two weeks' duration, and gave a history of cough for 20 years. He was running a low temperature (maximum rise to 99·4°F) and showed slight cyanosis and anaemia and marked degree of clubbing of the fingers. The neck veins were engorged and pulsatile and a tender liver was palpable 1" below the costal margin. Oedema was most marked in the legs and back of the sacrum. There were signs of free fluid in the abdomen. The heart was enlarged, apical impulse in the left 6th space on the anterior axillary line. There was no cardiac murmur. Evidence of marked emphysema was present in the chest. Breath sounds were vesicular with prolonged expiration and scattered rales and rhonchi could be heard all over both the lungs. He was drowsy but did not show any other neurological abnormality. Other systems were clinically normal. Pulse was 120 per minute and regular; B.P.—110/75 mm. Hg.; Hb.—12·4 g. per cent (Sahli); R.B.C.—3·75 million per c.mm.; W.B.C.—8,500 per c.mm.; E.S.R.—5 mm. in one hour; blood urea 50 mg. per cent; N.P.N.—33·6 mg. per cent; blood protein—6·1 g. per cent with albumen—2·5 per cent and globulin—3·43 per cent. Urine showed a trace of albumen but no casts or blood cells.

Diagnosis of cor pulmonale was made. He was put on the usual regime of salt and fluid restriction and was given oxygen and intravenous aminophylline which was repeated every 6 hours. Penicillin was given I.M. 200,000 units 8 hourly. He had acetazoleamide 1 tablet (250 mg.) daily. This produced satisfactory diuresis, output exceeding intake by over two pints. The oedema disappeared rapidly and he was feeling extremely well before being discharged, clinically relieved of cardiac failure and oedema on the 12th day.

Discussion

Out of our five cardiac patients four had satisfactory diuresis with acetazoleamide. Digitalis was never used in Case 1 and it was not considered indicated in Case 7. In others there was no appreciable improvement with digitalis. Only in Case 3 parenteral mercurial diuretic produced satisfactory diuresis when acetazoleamide failed. Oedema persisted almost unchanged inspite of good diuresis in Case 2. There was some reduction of oedema in Case 4 and it completely disappeared in Cases 1 and 7. Diminished renal blood flow in coarctation may theoretically account for the lack of response with acetazoleamide. But subsequent result with mercurial dieuretics hardly leaves any ground for such argument. The dose of acetazoleamide was, however, very small and it was not increased inspite of poor response.

Reduction in glomerular filtration rate in congestive cardiac failure may be a factor responsible for unsatisfactory response with acetazoleamide (*Lancet*, 1955). In our series the result, on the whole, was fairly satisfactory and acetazoleamide holds out a promise as an adjuvant to digitalis therapy and in rare cases of congestive failure where digitalis behaves erratically. Mercurials, however, have proved their worth and acetazoleamide may be used with advantage particularly for those cases where renal damage precludes the use of mercurials or where long continued use of mercurials is fraught with danger of toxic reactions. It has the added advantage that it is effective when taken orally.

Nadell (1953) and Heiskell *et al* (1954) treated respiratory acidosis (due to CO_2 retention) in

Table 1—Result of Acetazoleamide Therapy in 7 Patients

Case No.	Age in years	Diagnosis	Daily dose in mg.	Maximum output/ Intake (fixed at 2 pints)	Effect on oedema	Over-all clinical result
1	25	Hypertensive congestive failure	250	2·1	Disappeared	Good
2	11	Congestive failure (?)	125	2·6	No appreciable effect	Unsatisfactory
3	11	Coarctation aorta with congestive failure	125	1·4	—	Unsatisfactory
4	23	Mitral stenosis with congestive failure	250	1·7	Some reduction	Congestion persisted
5	52	Hepatic cirrhosis	250	2·3	Marked reduction	Death
6	52	Nutritional oedema	250	2·0	Marked reduction	Death
7	54	Cor pulmonale	250	2·2	Disappeared	Good

N.B.—Aetiology of congestive failure in Case 2 was undetermined. Case 3 never had clinical detectable oedema.

emphysema with acetazoleamide with encouraging results. In a recent communication Wishart and Isaac (1955) reported the result of acetazoleamide therapy in three severely anoxic emphysematous patients. Two of them died and the third recovered after withdrawal of the drug. Fall in CO_2 level of blood with increased excretion of bicarbonate was obtained in all cases. They inferred that the adverse result was probably due to persistently high PCO_2 or temporary lowering of pH of blood. Clinical improvement of the only case of cor pulmonale in our series was, however, quite satisfactory. Unfortunately detailed biochemical study was not possible.

The most unexpected result in our series is the fatality in two cases (Cases 5 and 6). Since the development and course of the terminal events were exactly identical the episodes seem to be more than fortuitous. A thorough biochemical study was not possible and postmortem was not allowed. We are, therefore, not in a position to suggest a definite cause of coma and death. One of these patients was clinically suffering from cirrhosis of the liver and the other had nutritional oedema, which is known to produce fatty infiltration of liver. Available literature shows that disorientation, sometime produced by acetazoleamide in patients with hepatic cirrhosis, is reversible. But in our patients it was progressive inspite of withdrawing the drug (which was used in small dose) and the patients died after long period of deep coma. Blood potassium was slightly lower than the accepted standard in one patient but higher in the other. Alteration of blood potassium level, therefore, does not seem to be a probable cause of death. The enzyme carbonic anhydrase is present in many organs besides kidneys. It is a respiratory enzyme of brain. Information about the degree and duration of inhibition of this enzyme in brain by acetazoleamide is not available. Although it was impossible to observe the degree of diuresis which persisted during the period of coma, there was remarkable reduction in oedema and ascites in both the patients. It may only be speculation that in hepatic cirrhosis and similar states a condition is obtained which favours an irreversible inhibitory action of acetazoleamide on the enzyme system in different organs. If liver plays such a vital role we should be justifiably cautious in using acetazoleamide not only in established cases of primary hepatic cirrhosis and precirrhotic conditions but also in chronic congestive failure with cardiac cirrhosis. But such inculpation of acetazoleamide will be too premature at this stage. Further studies may remove our apprehension which is based only on clinical observations. If may be noted here that except those two cases (Cases 5 and 6) no other patient showed any side effects.

Summary

1. Clinical results of acetazoleamide, an oral diuretic, in seven cases of oedema of different aetiology are described.

2. Satisfactory diuresis resulted in 4 out of 5 cases of congestive cardiac failure, one case of hepatic cirrhosis and one of nutritional oedema. In one case of congestive failure the oedema persisted unchanged inspite of good diuresis. In two cases systemic venous congestion was completely relieved.

3. The cases of cirrhosis and nutritional oedema developed coma after the third day of therapy and died under exactly identical circumstances—a fact which seems more than fortuitous.

4. The above clinical experience suggests that although acetazoleamide may be regarded as a good diuretic, it should be used with caution in diseases where there may be pathological involvement of the liver. Further studies are necessary to remove such apprehension.

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THE ACTION OF LOCAL ANAESTHETIC DRUGS ON TRACHEAL AND BRONCHIAL MUSCLES

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Trendelenburg (1913) was the first worker to show that excised bronchial muscle is dilated by cocaine. Swanson and Webster (1930) found in perfused lung experiments that cocaine abolished the constriction produced by morphine, partially reduced the responses of histamine but did not alter that produced by physostigmine and pilocarpine.

Later, Datta (1949) reported that procaine possesses an antihistamine property on the guinea-pig bronchioles, although it is 100 times weaker than antazoline. The results of Frommel, Beck and Vallette (1950) indicated that lignocaine was more active than procaine against an aerosol of acetylcholine on guinea-pig, but it had no activity against a histamine aerosol.

Since very little study has been made about the pharmacological actions of local anaesthetic drugs on the smooth muscles of the trachea and the bronchus and recently procaine has been used in therapeutics for treatment of bronchial asthma (Durieu *et al*, 1946 and Schapiro and Sadove, 1950) the tracheal and bronchial preparations were used to study the relative activity of the local anaesthetic drugs in antagonising the responses of various bronchoconstrictor drugs.

METHODS

The trachea of cats, rabbits, guinea-pigs and rats were removed immediately after killing the animals, freed from the underlying fascia, and cut into rings which were tied together in chains with loops of cotton (Castillo and de Beer, 1947). In the early experiments, five or six rings were suspended in an isolated organ bath (volume 15 ml.) at 37°C containing either oxygenated Tyrode's or Krebs Hensleit solution. The responses were recorded with a heavy lever in the rabbit, cat and guinea-pig experiments, but a light lever was used for studies on the rat's tracheal chain. In later experiments, the rings were opened according to the method described by Akcasu (1952). The human bronchus was secured either after operation from cases of carcinoma and bronchiectasis of the lungs, or from the post-mortem room. It was set up according to the method suggested by Hawkins and Schild (1951), using a light writing lever and normal Tyrode's solution.

The drugs used were hydrochloride salt of local anaesthetics, acetylcholine chloride, potassium chloride, l-adrenaline base and l-noradrenaline base and histamine acid phosphate.

RESULTS

Rabbit trachea—The rabbit trachea was found to be a good preparation to give regular responses to acetyl-choline (2×10^{-6}—5×10^{-6}); atropine (10^{-6}) completely abolished this effect. The preparation however was insensitive to histamine, although occasionally high concentrations (10^{-3}) produced a small contraction.

Procaine was an effective anti-acetylcholine agent, being only ten times less active than adrenaline (Fig. 1). Cocaine was about 4 times, and

FIG. 1—ISOLATED RABBIT TRACHEA. COMPARISON OF THE EFFECT OF PROCAINE (P. 5×10^{-6} AND 10^{-5}) AND ADRENALINE (Adr. 10^{-6}) ON THE ACETYLCHOLINE RESPONSE (A. 5×10^{-6}). NOTE THAT PROCAINE IS ONLY 10 TIMES LESS ACTIVE THAN ADRENALINE ON THIS PREPARATION.

lignocaine 5 times, less active than procaine. In presence of physostigmine (10 γ/litre), the dose of procaine to antagonise the acetylcholine response had to be increased about four times; cocaine, lignocaine and cinchocaine, however, showed an unusual effect, since non-effective doses potentiated the acetylcholine response.

Cat trachea—The trachea of the cat, like that of the rabbit, was sensitive to acetylcholine, but insensitive to histamine. Procaine again was a very effective antagonist to acetylcholine, being the most active of the local anaesthetic drugs tested (Table 1, Fig. 2). Adrenaline and noradrenaline

TABLE 1—RELATIVE POTENCY OF ANAESTHETIC DRUGS TESTED ON CAT TRACHEA IN TERMS OF PROCAINE

Drug	Relative potency to produce 50% reduction of acetylcholine response	Relative potency to produce 50% reduction of potassium chloride response	Relative local anaesthetic activity
Procaine	1	1	1
Lignocaine	0·025	1·3	1·2
Cocaine	0·1	4	7·4
Amylocaine	0·2	5	8
Amethocaine	0·3	6	8
Cinchocaine	0·2	10	10

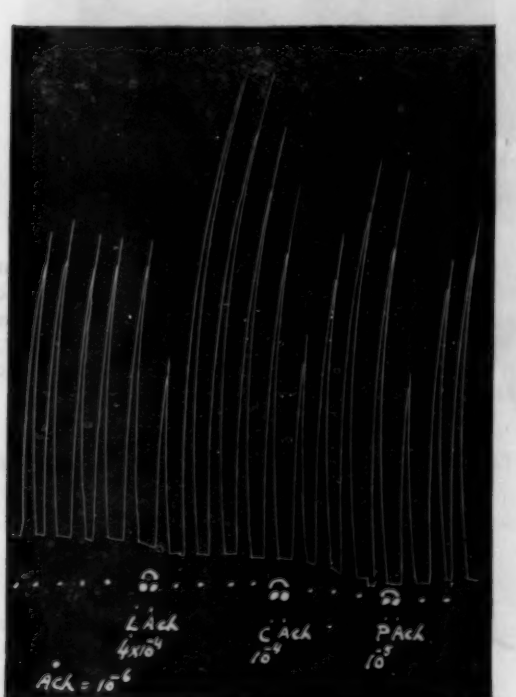

FIG. 2—ISOLATED CAT TRACHEA. COMPARISON OF EFFECTS OF PROCAINE (P. 10^{-5}), COCAINE (C. 10^{-4}) AND LIGNOCAINE (L. 4×10^{-4}) ON THE ACETYLCHOLINE RESPONSE (Ach. 10^{-6}).

were equally active in reducing the acetylcholine response and were about 20 times more potent than procaine. Sodium benzoate (5×10^{-3}—10^{-4}) did not antagonise the action of procaine, being in line with the negative finding already reported on rabbit ileum (Sinha, 1953). Non-effective doses of potassium chloride prolonged the anti-acetylcholine action of procaine. Sometimes, non-effective doses of lignocaine and cocaine potentiated the acetylcholine response.

In a further series of experiments, the local anaesthetic drugs as well as adrenaline were tested for their ability to antagonise the contraction induced by potassium chloride (2×10^{-2}). Doses of procaine which reduced the acetylcholine response did not affect the potassium chloride contraction. In fact, the dose had to be increased twenty-forty times to produce similar inhibitions (Fig. 3). However, the same doses of the other local anaesthetic drugs were effective against both contractions, with the result that their relative activities based on the ability to reduce the potassium chloride response were parallel to the local anaesthetic potencies (Table 1). Adrenaline (5×10^{-7}) was equally effective against both acetylcholine and potassium chloride contractions.

Guinea-pig trachea—The trachea of the guinea-pig was found to be sensitive to both acetylcholine and histamine (average concentration, 5×10^{-6}). Procaine (5×10^{-6}) was the most potent local anaesthetic drug in antagonising the acetylcholine contraction, so that relative activities were not parallel to their local anaesthetic potencies (Table 2).

TABLE 2—RELATIVE POTENCY OF ANAESTHETIC DRUGS TESTED ON GUINEA-PIG TRACHEA IN TERMS OF PROCAINE

Drug		Relative potency to produce 50% reduction of acetylcholine response	Relative potency to produce 50% reduction of histamine response	Relative potency to produce 50% reduction of potassium chloride response	Relative local anaesthetic activity
Procaine	...	1	1	1	1
Lignocaine	...	0·02-0·025	—	—	1·2
Cocaine	...	0·1	0·2	4	7·4
Amylocaine	...	0·5	—	—	8
Amethocaine	...	0·6	—	—	8
Cinchocaine	...	0·4	—	—	10

Adrenaline was about 250 times more potent than procaine. The dose of procaine reducing the acetylcholine response did not affect the histamine nor potassium chloride contractions; in fact, it had to be increased about 2-4 times to antagonise the histamine response and about twenty-forty times to reduce that of potassium chloride. On the other hand, cocaine (5×10^{-5}) and adrenaline (2×10^{-6})

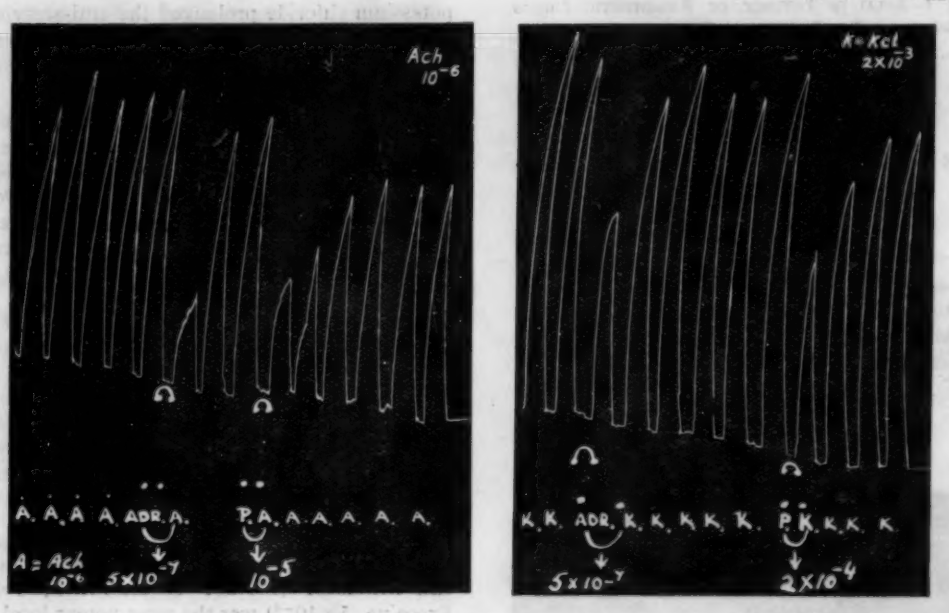

FIG. 3—ISOLATED CAT TRACHEA. THE EFFECTS OF ADRENALINE (Adr. 5×10^{-7}) AND PROCAINE (P. 10^{-5} AND 2×10^{-4}) ON THE ACETYLCHOLINE (Ach. 10^{-6}) AND POTASSIUM CHLORIDE (KCl. 2×10^{-3}) RESPONSES. NOTE THAT THE SAME DOSE OF ADRENALINE IS EFFECTIVE AGAINST BOTH RESPONSES BUT THE DOSE OF PROCAINE HAS TO BE INCREASED ABOUT 20 TIMES TO REDUCE THE POTASSIUM CHLORIDE RESPONSE.

produced similar inhibitory effects against acetylcholine, histamine and potassium chloride contractions, with the result that adrenaline was 1000 times more active than procaine in reducing the histamine response.

Rat trachea—The rat trachea was sensitive to acetylcholine (average concentration, 10^{-5}) but insensitive to histamine. On this preparation, also, procaine was more potent than cocaine in antagonising the acetylcholine contraction. Adrenaline, however, was about 50-100 times more active than procaine.

Dog trachea—The dog trachea was extremely sensitive to acetylcholine ($10^{-8}-10^{-7}$) and proved to be a useful preparation, a single ring giving consistent responses. Procaine was about 15-20 times less active than adrenaline in antagonising the acetylcholine response. Noradrenaline was about twice less active than adrenaline. In the presence of ephedrine (10^{-4}), the dose of acetylcholine had to be increased four times to reproduce the original effect. Procaine had to be increased 5-10 times to produce inhibition, whilst adrenaline and noradrenaline had to be increased 100 times.

Human bronchus—The human bronchus was equally sensitive to acetylcholine and histamine (average concentration, $2\times10^{-5}-4\times10^{-5}$).

Procaine and amethocaine were the most potent of the local anaesthetic drugs in antagonising the acetylcholine response (Table 3); adrenaline was 4000 times more active than procaine. However, it was about 8000 times more active against the histamine response.

TABLE 3—RELATIVE POTENCY OF ANAESTHETIC DRUGS TESTED ON HUMAN BRONCHUS IN TERMS OF PROCAINE

Drug	Inhibitory effect on the action of acetylcholine		Relative local anaesthetic activity
	Concentration to produce 50% reduction	Relative potency	
Procaine ...	3×10^{-5}	1	1
Lignocaine ...	2×10^{-4}	0·14	1·2
Cocaine ...	$1·5\times10^{-4}$	0·2	7·4
Amylocaine ...	6×10^{-5}	0·5	8
Amethocaine ...	3×10^{-5}	1	8
Cinchocaine ...	5×10^{-6}	0·6	10

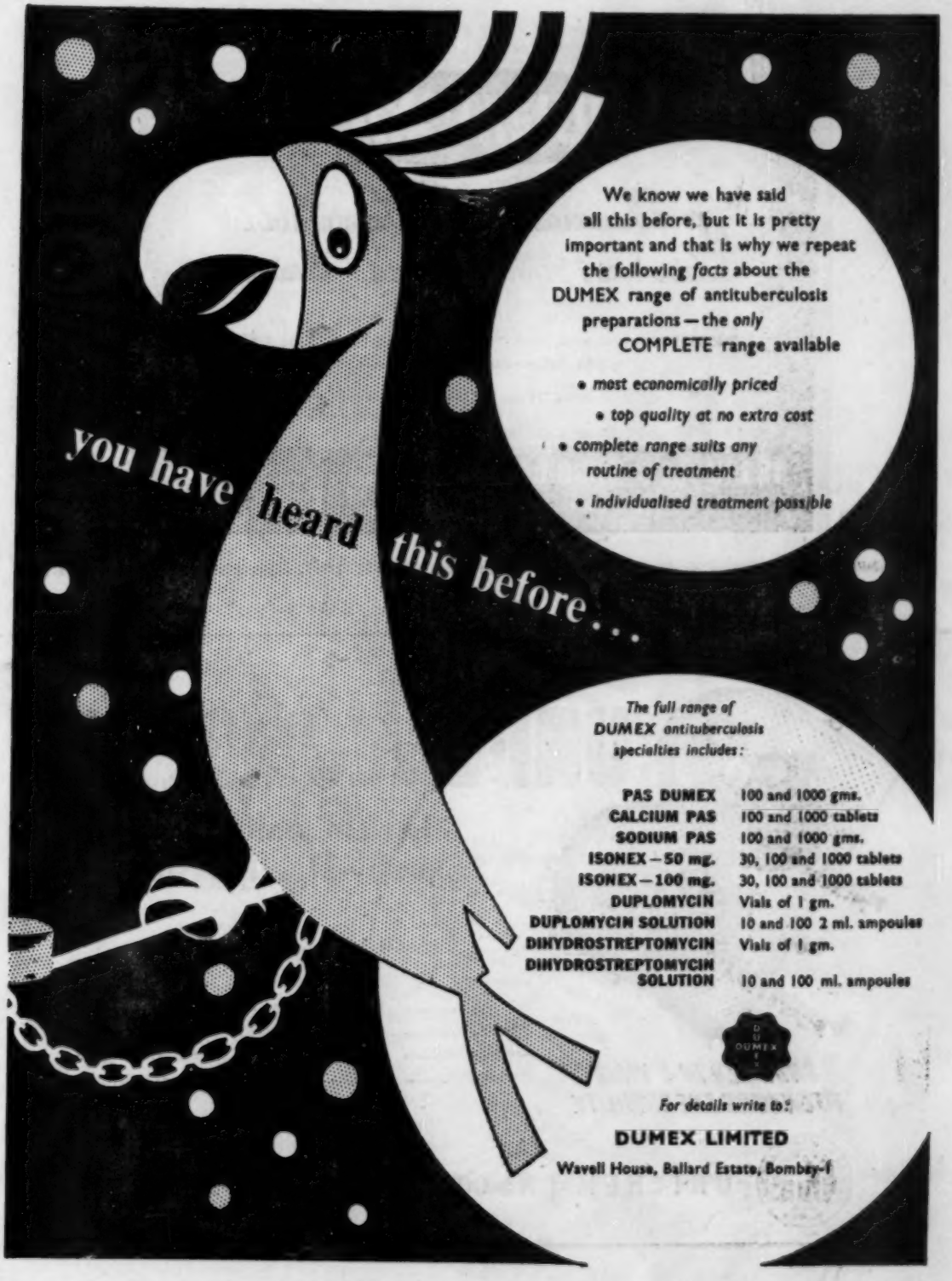
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TABLE 4—RELATIVE POTENCY OF PROCAINE AND ADRENALINE WHEN TESTED AGAINST ACETYLCHOLINE AND HISTAMINE ON TRACHEA AND BRONCHUS OF DIFFERENT SPECIES OF ANIMALS

Species ...	Rabbit	Cat	Dog	Rat	Gluineapig		Human bronchus	
Constrictor ...	Acetyl-choline	Acetyl-choline	Acetyl-choline	Acetyl-choline	Acetyl-choline	Hist-amine	Acetyl-choline	Hist-amine
Procaine ...	1	1	1	1	1	1	1	1
l-Adrenaline ...	10	20	15-20	50-100	250	1000	4000	8000

DISCUSSION

The results on the trachea preparations are comparable with those found on the gut (Sinha, 1953a and 1953b), so that the ability of the local anaesthetic drugs to reduce the potassium chloride response falls more in line with relative local anaesthetic potencies than their ability to reduce acetylcholine contractions. Whereas the doses of lignocaine, cocaine, amylocaine, amethocaine and cinchocaine are almost the same for both the antagonisms, those of procaine differ widely. For example, the dose of procaine needed to reduce the acetylcholine response has to be increased twenty to forty times to produce a similar reduction of the potassium chloride response.

The results with procaine and cocaine on the guinea-pig trachea, using histamine as the stimulant, bear out similar discrepancies as observed on the guinea-pig gut (Sinha, *loc cit.*), and they are in no way comparable to their local anaesthetic activities. The activity of procaine relative to that of adrenaline when tested against acetylcholine or histamine has varied on different preparations (Table 4), but the results justify its clinical trial for the relief of bronchial asthma if one considers the relative activity of the commonly used drug, e.g., aminophylline (McDougal and West, 1952). The toxicity of procaine, however, limits its therapeutic usefulness. The point of action of procaine and adrenaline does not appear to be the same since infusions of ephedrine affect the adrenaline response more than that of procaine. As in the gut experiments (Sinha, *loc. cit.*), an additional property of lignocaine and cocaine on the rabbit and cat trachea has been noted. These two local anaesthetic drugs potentiate the responses produced by acetylcholine.

Nicotine was not used in these experiments because all the isolated tracheal preparations were insensitive to this drug.

SUMMARY

1. The action of local anaesthetic drugs on the human bronchus and on the trachea of different species of animals has been studied.

2. Their relative activities in antagonising the potassium chloride response are parallel to their local anaesthetic potencies.

3. Their anti-acetylcholine and antihistamine activities are not parallel to their local anaesthetic potencies.

4. The activity of procaine relative to that of adrenaline in antagnoising the acetylcholine and histamine responses has been found to have varied in different species.

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PARAGONIMIASIS OF THE LUNG

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Pulmonary infestation with *Paragonimus westermani* (lung fluke) is said to be of common occurrence in the inhabitants of the Far East especially amongst the Chinese, Japanese, Koreans and Philippines. The worm was first described by Westerman (1877) and it was first found out from the autopsy study of a Portuguese in Formosa (Ringer, 1879, quoted by Chatterjee, 1952). Since then great advances have been made in the study of its life cycle by Manson (1880), Nakagawa (1915-19), Yokogawa (1917) and Ameel (1934). Cases have been reported from U.S.A. (Baren and Coha, 1946) and other parts of the world. Although the incidence of pulmonary paragonimiasis is said to be of common occurrence among the Chinese we have failed so far to find the presence of this infection in a large number of Chinese patients with different pulmonary symptoms.

The disease is contracted from the ingestion of uncooked or partly cooked crabs, crayfishes and lobsters which contain the larval forms of *Paragonimus westermani*. The infection may also occur from drinking of infected river or stream water containing the cysts of the infected crabs and crayfishes. Another common source of such infection among the Koreans is the use of raw juice of crayfish for medicinal purposes to control whooping cough and diarrhoea. The larvae rapidly develop in the small intestine and within 12-24 hours burrow their way through the tendinous slips of the diaphragm into the layers of pleura and then in the parenchyma of the lung where they become encysted and produce symptoms. The flukes may be widely distributed in different parts of the intestine, serous membranes, skin etc., though the lung is the site of predilection. Ova are produced in large numbers and coughed out in the sputum which is characteristically mucoid, stringy, tenacious with brownish granules and flakes.

The fresh worms are fleshy, reddish brown in colour and in shape resemble one half of a pea ; they measure upto 1·2 cm. in length, 6 mm. in breadth and 5 mm. in thickness. The eggs measure about 70 by 45 μ and contain a fertilized unsegmented ovum in sputum or faeces.

The study of pathological specimens show small brown spots on the surface of the pleura and many small deep red tumour like swellings in the peripheral and basal parts of the lungs. Section of the lung reveals 'burrow like' spaces in the infiltrated granuloma in which are contained large number of parasites. Such pathological changes are also observed in other viscera infected by the worms. At times the 'burrow like' spaces communicate with each other giving rise to a cavity in the lung which may communicate with a bronchus.

The clinical picture of paragonimus infection of the lung is variable. Often the onset is insidious with cough, bloody sputum and sometimes frank irregular attacks of haemoptysis and often a vague feeling of discomfort in the chest. Haemoptysis is the commonest symptom and paragonimiasis is often a frequent cause of "endemic haemoptysis". Physical findings in the chest often do not tally with the pathological changes. Rales may be present. There may be clubbing of the fingers in long standing cases. The clinical picture is often indistinguishable from pulmonary tuberculosis with which it is commonly mistaken. The roentgenologic findings of the chest are variable and at times very disappointing. There is no clear cut x-ray appearance but shadows are situated at bases of one or both lungs which may closely resemble the picture of bronchiectasis, pulmonary tuberculosis, pneumonitis and sometimes cystic condition of the lung. Sputum examination always clinches the diagnosis.

The sputum is characteristically mucoid, thick, tenacious with brownish granules. Character of the sputum is partly due to presence of R.B.C. and partly due to crowding of thick shelled operculated eggs, pus cells, large number of eosinophil cells and Charcot-Leyden crystals. Eggs are oval, have smooth double outlined shells, measuring 80-100 μ by 40-50 μ.

The course of the disease is generally long, 4-5 years and the parasites gradually die out in the body. The prognosis, therefore, is not serious. The disability is also not much except during the periods of large haemoptysis.

CASE REPORTS

Case 1—L. S. K., male, aged 47, Chinese seaman, was first seen by us on 8-5-55. He gave a history of cough with expectoration of brownish coloured sputum for 3 months. Cough was usually worse early in the morning after rising from bed and the sputum contained brownish granules. He developed anorexia and lost 13 lb. of weight during the last 3 months. He gave a history of having taken 5 lac units of penicillin for cough following which he had a severe reaction of rash all over the body, swelling of the face and fainting attack. He was treated with some other injections and was well after a few hours.

Family and personal history—Nothing relevant.

On examination the patient was well developed. The temperature was 98°F. Anaemia, oedema, jaundice, clubbing of fingers were absent. Lymph nodes were not palpable. Examination of the chest revealed crepitations at the base of the right lung posteriorly. No other abnormality was detected in other systems.

Investigations: W.B.C. was 12,000/c.mm. with 18 per cent eosinophils. E.S.R. was 40 mm./1st hour. The sputum was mucoid, stringy and contained large number of reddish brown granules and clots of blood. Quantity of sputum in 24 hours varied from 6-10 oz. The wet preparation revealed plenty of pus cells, R.B.C., fair number of eosinophil cells and mononuclear cells and fair number of Charcot-Leyden crystals. There were fair number of ova of *Paragonimus westermani* (1-3 per 3-4 fields) (Fig. 1, *vide* Plate). The sputum examination repeated after one week showed the same picture as before. Chest x-ray (Fig. 2, *vide* Plate) showed a rounded calcified focus in the first interspace on the right side. A small calcified focus was also seen in the left upper zone. These two foci suggested old healed tuberculous lesions. There was a small patch of opacity (suggestive of pneumonitis) in the left lower zone with exaggerated bronchovascular markings at both bases. Lipiodol bronchography or bronchoscopy was not done. Therapeutic trials with sulphonamides (1 g.×4 times a day for 5 days) and emetine hydrochloride, grain 1, daily for 9 days followed by aureomycin 1 g. a day proved beneficial. Cough and expectoration diminished, he gained in weight (7-8 lb.) in course of 6 weeks. He is better now.

Case 2—S. Z., 62 years old Chinese seaman, was first seen by us on 27-7-1955 with a history of cough with mucopurulent expectoration for one year. Irregular attacks of haemoptysis off and on for the last one year and worse (amounting to about 2-3 oz. in 24 hours) for the last one week. He also gave a history of progressive loss of weight (16 lb.) with anorexia during the last six months. No relevant past, personal or family history was obtained.

On examination the patient was healthy and well nourished. Temperature was 97·4°F. Pulse rate was 80 per minute and respiration 18 per minute. Anaemia, cyanosis, jaundice, oedema of the extremities were absent. There was, however, a tendency to clubbing of the fingers. Crepitations were found in the base of both lungs, more marked posteriorly. No other relevant findings were obtained on examination of other systems.

The W.B.C. count was 15,000/c.mm., polymorphs 74 per cent, lymphocytes 14 per cent, monocytes 2 per cent and eosinophils 10 per cent. E.S.R. 46 mm./1st hour.

The sputum was mucopurulent, sticky, brownish with large number of reddish brown granules like the first case. Microscopical examination showed fair number of pus cells, fair number of R.B.C., Charcot-Leyden crystals and eosinophil cells, fair number of ova (1-2 per 2-3 fields) of *Paragonimus westermani* were found.

X-ray examination of the chest on 29-7-1955 showed (Fig. 3, *vide* Plate) small hazy opacities over the lower zone on the right side and hazy opacities (pneumonitis) over the mid and lower zones of the left lung. The patient was treated in the same line as in the first case but here, except for a little diminution of expectoration, the patient was almost the same as before treatment. He, however, gained 5 lb. in weight during four weeks of observation.

Conclusion

These two cases of haemoptysis with certain lung findings definitely proved to be due to infection by *Paragonimus westermani*. So far we have not met with this disease in the Chinese or any other community in this part of the country. It is true that both the patients were Chinese seamen and both of them visited endemic areas of the disease. It should, however, be pointed out that these Chinese are also residents of Calcutta and they have the habit of eating crabs here. It is therefore not impossible that they have contracted the disease locally. Because of this reason all cases of haemoptysis in this community should be investigated for this disease if common causes could not be detected. Indian communities do not eat raw crabs and crayfishes and therefore are not likely to contract this disease.

Summary

A short review of the history, life cycle, pathological study, clinical features and roentgenological findings of paragonimiasis of the lung is presented.

Two cases of pulmonary paragonimiasis are reported.

The diagnosis and treatment of the condition are discussed.

Acknowledgments

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SPECIAL ARTICLE

SARCOIDOSIS

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Historical Review

Much credit is due to Jonathan Hutchinson (1898) for the publication of the earliest literature on this malady. In the following year Boeck (1899) designated the disease as "multiple benign sarkoid". The underlying common pathological development was brought home to us by Schaumann in 1914 (Schaumann, 1924) but the protean character and pleomorphic clinical features of the disease have been brought to light of late.

Definition

A good number of definitions have been put forward but the attempts have blurred rather than sharpened it. The U.S. National Reaearch Council (quoted by Ricker and Clark, 1949) has forwarded the following definition of sarcoidosis: "Sarcoidosis is a disease of unknown aetiology, characterised pathologically by presence in any organ or tissue of epithelioid cell tubercles with inconspicuous or no necrosis and by the frequent presence of refractile or apparently calcified bodies in the giant cells of tubercles. These characteristic lesions may be replaced by fibrosis, hyalinization or it is described as a disseminated granuloma affecting frequently, lymph nodes, lungs, skin, eyes and bones, particularly of the extremities. The disease pursues a chronic course with minimal or no constitutional symptoms, punctuated by acute phases characterised by a generalised reaction with malaise and fever, and signs and symptoms which may refer to the tissues and organs involved".

Aetiology

It is probably a common affection encountered throughout the world, sparing no race, but with a predilection for the Negroes. No age is immune to the inroads of the disease though a predominance between 20 to 40 years has been recorded. Predominance of the malady in neither sex has been described. Familial or hereditary factors have not been said to play any part in the causation of the disease.

The causative agent—The causative agent of sarcoidosis is unknown to the medical world, though various theories have been postulated and advanced. Since the very birth of the disease, a large number of workers have supported tuberculous basis of the disease. But this opinion has been refuted by a good number of workers who believe the disease to be due to specific but unknown virus and Kviem's test has been claimed by them to support this view. Others believe that various fungi are responsible. Chronic granuloma associated with beryllium poisoning is very similar to sarcoidosis and a few workers have incriminated beryllium as one of the agents in the production of the disease.

Pathology—The basic pathological lesions consist of non-caseating granulomas. These granulomas are composed of focal collection of large epithelioid cells with abundant acidophilic cytoplasm and large ovoid vesicular nuclei. The cells at times tend to be arranged concentrically and the giant cells are either of the Langhans or foreign body types. Inclusion bodies of various types have been found especially within giant cells. These include asteroid bodies, radial structures, whose nature is still uncertain and Schaumann bodies (round or oval non-crystalline laminated inclusions).

There are usually a few lymphocytes scattered at the periphery of the lesion, the whole being bounded by a reticulum. These structures are nonspecific and are found in a variety of granulomatous diseases. Similar lesion may be produced by chemical agents, beryllium and silicates, fats and oils of exogenous or endogenous variety, microbic agents including certain bacteria, fungi, spirochaetes and viruses.

The foci may resolve, may remain stationary for months or even for many years, or may heal, forming hyaline fibrous nodules. The organs involved frequently show enlargements but the lesions may completely replace the tissue involved. Contrary to the orthodox belief of absence of caseation in these lesions, it is now recognised that presence of small focus of necrosis is compatible with diagnosis of sarcoidosis. The histologic appearance varies with the stage of the disease in that the tubercles undergo progressive hyalinisation and fibrosis.

Clinical Features

The clinical pictures vary according to the disease affecting any of the following organs or tissues:

The lymph nodes, lungs, skin, eyes, bones, nervous system, heart and other organs.

Onset is insidious and the malady has a great tendency for remaining benign for years together.

One of the most striking features of the disease is the great disproportion between the symptoms and the extent of the lesion. Few can deny that a grossly abnormal lung picture often accompanies a reasonably fit and uncomplaining patient who innocently attends for mass x-ray examination and the disease is detected.

General symptoms are not a prominent feature in the earlier stages of the disease. Loss of weight is slight and fever though uncommon, occasionally may accompany a fairly acute onset of the disease with marked enlargement of the liver and spleen.

There may be ocular disturbances, enlargement of the lymph nodes, loss of weight, skin eruptions, cough and breathlessness. Some of the victims complain of pain at various sites, malaise, sweating, palpitation, fever, facial paralysis, swelling of parotid gland and joint pains.

LYMPH NODES :

In every case of sarcoidosis at least one group of lymph glands is involved. Generalised gross enlargement of the peripheral glands is uncommon but whenever it so happens there also occurs enlargement of the spleen and liver with accompanying symptoms of ill health and fever. In the vast majority of cases one group of glands is affected. This may be superficial, such as the cervical group but the mediastinal and bronchopulmonary glands are frequently involved. Occasionally the mediastinal groups are particularly noticeable showing greatly enlarged broad upper mediastinal shadow on x-ray. Great emphasis has been given on the bronchopulmonary group and in England, gross bilateral enlargement of hilar glands often with well marked circular contour, in a comparatively well patient, has been described as diagnostic of sarcoidosis.

LUNGS :

The incidence of pulmonary sacroidosis is much more in comparison to other organs which are involved in this disease. The signs and symptoms may be present or, not unusually, may be entirely absent. Bronchopulmonary symptoms consist of cough, breathlessness and mild indefinite chest pain. It is not an uncommon occurrence to find extensive involvement of the lung without significant symptoms suggesting respiratory disease. This particularly holds good in those in whom the disease is of recent onset. Cough is mild and transitory. It is troublesome only when accompanied by much enlargement of the mediastinal lymph nodes. Sputum is white and clear and seldom is large in amount. Haemoptysis is not usually met with.

Severe symptoms appear only when there is very extensive involvement or permanent injury to the lung tissue due to long protracted course of the disease which produces fibrosis of the lung tissue which paves the way for emphysema and chronic cor pulmonale. To this picture is added pulmonary hypertension. Failure of the right ventricle ensues which gives the final blow and puts an end to the whole course of the disease by a fatal termination.

Five types of changes have been detected in chest radiograph in sarcoidosis (Scadding, 1950) :

(1) Enlargement of the hilar lymph nodes, without detectable lung changes ;

(2) bilateral enlarged lymph nodes with diffuse mottling in the lungs ;

(3) diffuse pulmonary infiltration without gross evidence of the hilar lymph node enlargement ;

(4) fine reticulation ; and

(5) fibrosis, emphysema and bulla formation.

Infiltration is of two types :

(1) nodules of variable size rather than the uniform size seen in miliary tuberculosis, and

(2) reticulated strand like areas resembling fibrosis more than nodulation.

In advanced stages pulmonary infiltration is replaced by extensive fibrosis and emphysema. Radiographs similar to sarcoidosis may be found in miliary tuberculosis, carcinomatosis, berylliosis, histoplasmosis, coccidioidomycosis, erythema nodosum, eosinophilia lung, lymphosarcoma etc.

Complications—Pulmonary tuberculosis has been found to occur in 10 per cent of the cases but a few observers have stated a very low figure (1-2 per cent). Extensive fibrosis, emphysema and respiratory disability are common complications, whereas branchiectasis, pleural effusion and spontaneous pneumothorax are uncommon complications. Haemoptysis occurs only when bronchiectasis or pneumonitis is present.

Course and prognosis—The course of the lung disease is so variable and unpredictable that prognosis of any particular case is difficult to determine. One seldom knows when it occurs and one is never sure when it is cured. Many cases are so benign and asymptomatic that they disappear without detection.

The course of the disease is a long one of several years. During this period, the signs and symptoms have a strong tendency to become inactive or cured. This long course of chronic disease is occasionally punctuated by acute exacerbation, after long periods of apparent inactivity and remission. 5 to 10 years of survival rate have been seen in 92·9 per cent of a series of cases observed by Carr and Gage (1954). Death

usually occurs due to extensive fibrosis, emphysema, respiratory and cardiac insufficiency, or pulmonary tuberculosis.

SKIN :

The skin lesions in sarcoidosis are considered in three groups :

(1) First and commonest, Boeck's "multiple benign sarkoid" or as he termed it later "miliary lupoid".
(2) Subcutaneous sarcoid of Darier and Roussy (1904).
(3) Lupus pernio, first described by Besnier in 1889.

The first two varieties may appear together but the third one appears alone. Multiple benign sarcoid is formed of nodules or plaques. At first lesions are reddish or bluish red ; later they become yellowish brown. On pressure they appear as small greyish yellow foci. They are quite variable in number, distribution and size. They appear most commonly on the extensor aspects of the extremities and on the face, back or trunk. The lesions either persist unchanged or resolove with scar formation.

Ulceration does not take place. The subcutaneous sarcoid of Darier-Roussy is less frequent. The lesions are comparatively few in number. The colour is the same as the skin or dull bluish red. Their size is as big as a walnut.

Lupus pernio is characterized by symmetrical erythematous areas with bluish red infiltrated thickened plaques. Swelling and ulceration are common. It affects commonly the nose, face, ears, fingers and back of hands.

EYE :

Iritis tops the list of all ocular sarcoid lesions. Characteristically it is a painless nodular iritis with slight inflammation (Woods, 1951). The nodules are larger, pinker and more irregular than miliary tubercles. Large "mutton fat" keratic deposits are common. The disease follows a chronic course and may heal with hyalinisation or complete regression. The great danger of the disease lies in the occurrence of phthisis bulbi with complete blindness. Off and on, such eye lesions are associated with enlargement of the lacrimal, salivary and cervical lymph nodes.

BONES :

A reticular pattern resulting from the destruction of the finer trabeculae is the most characteristic and commonest x-ray finding. It is usually found in the phalanges and is almost specific of sarcoidosis. This change may be accompanied by the 'punched out' cystic spaces. The disease usually starts in the medullary cavity and the earliest change is a mottled or stippled pattern in the phalanges, more marked at the distal ends of the proximal part of the distal phalanges though no part of the skeleton is spared. The lacunae formed enlarge and coalesce to form the classical cysts of different shapes and sizes. The incidence of bone changes has been estimated around 15 per cent. Finger swellings, when present, are usually painless. The healing takes place with resolution or fibrotic persistence of the cysts. Complications such as spontaneous fractures and marked finger deformity may occur occasionally.

NERVOUS SYSTEM :

The changes found in the nervous system have been reviewed by Colover (1948). The cranial nerves are the usual victims. The facial nerve is affected on one or both sides, sometimes accompanied by parotid enlargement. The optic nerve, the glossopharyngeal and vagus, with affection of the pharynx and vocal cords, are also liable to infiltration. The peripheral nerves may be affected. Meningo-encephalitis and myelitis have been seen.

HEART :

Sarcoid infiltration of the myocardium is not common. A large number of cases has been reported in the American literature. It is suspected clinically in the presence of various arrhythmias or unexplained tachycardia. Several deaths have occurred due to this malady in apparently healthy people (Simkins, 1951).

OTHER ORGANS :

The liver shows focal infiltrations without any impairment of function or enlargement in size. The spleen is involved in the general involvement of lymphatic structures. It is often palpable and may rarely be very large. On occasions, the nose, larynx, tonsils, adenoids, epididymis, testes and breasts have been found diseased. The pituitary and thyroid have also shown infiltration.

DIAGNOSIS

Diagnosis depends upon compatible clinical picture, typical radiological appearances, characteristic histological features and negative bacteriologic studies of the biopsy or necropsy material. The following laboratory findings have been reported in cases of sarcoidosis.

Haematological changes—Leucocytes are normal or slightly low but occasionally elevated. Differential count, erythrocyte count and haemoglobin content do not reveal any characteristic pattern of change and, for all intents and purposes,

they are unaltered. Anaemia is not a feature of the disease.

Biochemical changes—More than half the cases shows an abnormal increase in total serum protein and values of more than 9 g. per cent are not unusual. This change is due to hyperglobinaemia. There is hypercalcaemia. Alkaline phosphatase is significantly increased. Acid phosphatase on the other hand remains normal.

Tuberculin reaction—It has been recognised for many years that a low sensitivity to tuberculin is of frequent occurrence in sarcoidosis. Wells and Wylie (1949) have shown that there is present in the serum of some cases of sarcoidosis a tuberculin neutralizing factor.

Kviem-Nickerson reaction—When particles of sarcoid tissue are injected intradermally into patients with sarcoidosis a characteristic skin reaction develops which does not occur in normal people. This reaction has been found to be highly specific for sarcoidosis. The use of the test is greatly limited because of the occasional severity of the reaction. Many weeks are necessary for the reaction to appear and it takes many months for the final disappearance. It is, therefore, seldom used as a diagnostic test.

Sputum examination—Its significance lies in the elimination of other conditions, such as tuberculosis, fungus diseases, malignancy and bronchiectasis.

Bronchoscopy is used for elimination of other conditions.

Histopathological study—Lymph node biopsy material revealing characteristic lesion of the disease has been highly spoken of as confirmatory in the diagnosis of the disease. In skin sarcoidosis, skin biopsy examination revealing characteristic sarcoid granuloma is the sure method of confirmation of the disease. Less frequently parotid and submaxillary glands, bone marrow, liver and tonsil biopsies are also examined for typical sarcoidal lesions.

Treatment

Numerous methods of treatment have been tried in the absence of a specific drug. Ultraviolet light, x-rays and radium have been taken recourse to in treating the disease. Radium has been found beneficial in some superficial lesions only. Arsenic, tuberculin, calciferol, various antibiotics, nitrogen mustard and urethane have all been unsuccessfully tried in the treatment of sarcoidosis. Streptomycin and isoniazid have been found quite ineffective. The results of the treatment with chloramphenicol have proved quite disappointing. Encouraging reports of successful treatment have been recorded with dihydrotachysterol, corticotropin or cortisone. Though dihydrotachysterol seems somewhat effective it is highly toxic and is not recommended.

Most of the beneficial effects with cortisone or corticotropin have been found to be clinical only, with little or no alteration in the x-ray picture of the lungs.

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MEDICAL EDUCATION

THREE YEAR DEGREE COURSE *VIS A VIS* MEDICAL EDUCATION

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While making far reaching recommendations for the reorganisation of the Secondary Education in the country the Secondary Education Commission headed by Dr. A. Laksmanaswamy Mudaliar recommended abolition of the existing Intermediate course. The Secondary School course is proposed to consist of 3 years of diverse subjects ending in a Secondary School leaving Certificate. The first year of the existing Intermediate course will be added to the secondary schools constituting the higher secondary school course. The second year of the Intermediate course will be added to the existing two year degree course. This will constitute the proposed 3 year Degree Course.

Government of India has been proceeding ahead with the implementation of these recommendations. Universities have been requested to abolish the intermediate course with immediate effect. Government of India desire that there must be no more admission into the intermediate class from the academic year of 1956 June so that Intermediate examinations will be completely wiped out by 1958. The Inter-University Board has been seriously considering the many implications involved. Individual universities have been asked to make necessary amendments to their regulations in this regard. The Commission recommended and the Government of India accepted this proposition with a view to present more mature students to the university courses and to provide a concentrated and a continuous degree course of education for a prolonged period of 3 years without any intervening examinations. Examinations, it is contended, waste a lot of valuable time. The scheme of enlarging the scope of Secondary School course and of the Degree Course at the sacrifice of Intermediate education is generally accepted in principle.

There is, however, some difficulty in fitting in certain professional degree courses to the new set up envisaged. Medical and engineering degree courses and certain technological courses begin immediately after the Intermediate course. I.Sc. with biology and I.Sc. with mathematics are respectively the minimum pre-requisite qualifications for entry into medical and engineering colleges.

Not many years back physics and biology or biology alone used to be taught in the medical colleges, e.g., Preliminary Scientific M.B. of Calcutta and First M.B., B.S. course of Patna. Only a few years ago I.Sc. with biology was made the minimum qualification for entry into the Medical College. The medical college course was reduced from 6 years course to 5 years uniformly all over India. Further again very recently organic chemistry has been added to the I.Sc. course and with a little adjustment of the pre-clinical course in the medical colleges, the 5 year degree course has been reduced by some universities to 4½ years with one additional year for compulsory practical training before the award of the M.B., B.S. degree. The Utkal University has already given effect to these new regulations. The entire medical curriculum is thus now based on the existence of the Intermediate Science course.

The Utkal University Committee of Inspectors headed by Dr. P. Parija, while advocating the abolition of the Intermediate course in line with the Mudaliar Commission recommendations have attempted to provide a solution for the difficulty of fitting in the medical and engineering courses to the proposed set up of the 3 year degree course. They propose that the students intending to take up medical and engineering courses should join the 3 year degree course in science and branch off for their respective courses after the first year of the degree course. It is now necessary to examine the practicability of this proposal. The I.Sc. course is a fairly stiff one and the students intending for medical or engineering studies have to equip themselves sufficiently in chemistry, physics and biology or mathematics to enable them to follow instructions in the medical or engineering colleges.

There are now two views how the first year of the present Intermediate course is to be used. The first year Intermediate course according to one view should be kept in the colleges and be used to prepare the intending candidates for the degree course, to focus the aptitude of the students for different courses of studies and further to eliminate the students not suitable for a degree course. The other view is that this year should be added to the secondary schools which will be designated as higher secondary schools. The Mudaliar Commission recommends a 3 or 4 years course of secondary education after an eight years course of elementary (basic) education. The first year of this secondary education course is to be devoted to orientation and exploration of students' aptitudes. The last 2 or 3 years are meant for diversified courses of studies. The first view seeks to orient and explore the students' interests and aptitudes in the post-school (pre-university) stage, whereas the second view takes it back to a much earlier stage, that is, at the post-elementary (basic) and pre-secondary school stage. The Parija Committee's recommendation is based on the first view.

In the set up envisaged by the Parija Committee it would appear that a successful product of the secondary school (corresponding to present matriculates) will be subjected to orientation and exploration of aptitudes in the preparatory year. If found suitable, he will begin the real study of the subjects when he begins the degree course. No substantial portion of the premedical subjects can possibly be covered within one year of the degree course. The Medical Council of India has to be satisfied about the fitness of these students for the medical course after one year of the degree course. This involves one public examination within the three year degree course. Branching from the first year of the degree course does not appear to be the proper solution. The 3 year degree course with the consequential abolition of the Intermediate course is a far-reaching proposition, revolutionary in outlook. The problem demands a revolutionary approach. The professional degree courses of studies require a thorough re-organisation to fit into the new set up.

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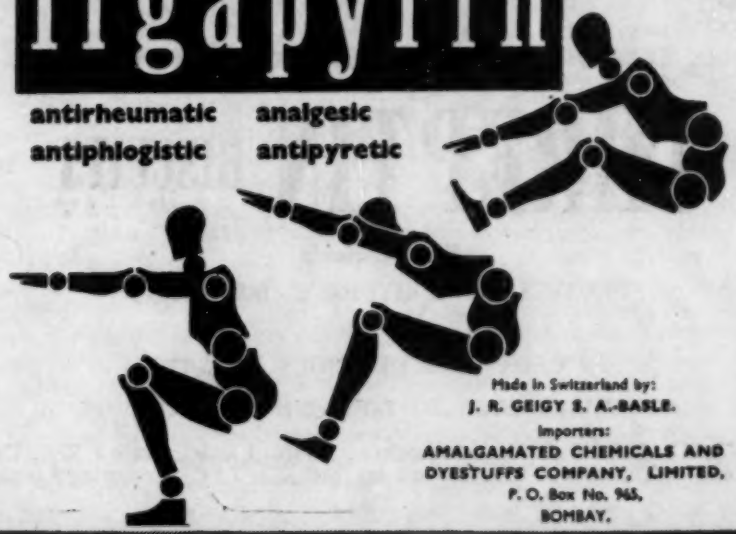

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At present the medical course is covered by the public examinations namely the First M.B., B.S. examination and the Final M.B., B.S. examination. The First M.B., B.S. course covers the study of pre-clinical science subjects of human anatomy and human physiology and extends for two years (1½ years in the recent regulations). The Final M.B., B.S. course consisting of Part I and Part II covers exclusively medical subjects like forensic medicine, pharmacology, pathology (Part I) and Medicine, social and preventive medicine, surgery, ophthalmology, obstetrics and gynaecology (Part II) and extends over a 3-year period of study. It may be noted here that human physiology and human anatomy are not exclusively medical subjects. These subjects are also taught as science subjects to non-medical students in the different stages of university education.

As a solution of these difficulties it is proposed that the non-clinical subjects, human physiology and anatomy and the pre-medical subjects of biology, chemistry and physics be fitted into the proposed 3 year degree course† and the clinical subjects like medicine, surgery, obstetrics and social and preventive medicine, forensic medicine, pharmacology, pathology, be constituted into the medical degree course. As envisaged here, the present First M.B., B.S. examination will be the first degree examination namely B.Sc. examination to be taken up three years after entering the university. The present Final M.B., B.S. examination (Part I and Part II) will be the only one M.B., B.S. examination. M.B., B.S. examination as proposed now will be of the same status as the present LL.B. examination and B.Ed. examination. These are degrees taken after a preliminary degree but they are not post-graduate degrees like M.A., M.Sc., M.D., M.S., or M.L.

Under the regulations now in force, students take 3½ years after Matriculation to complete pre-medical and pre-clinical courses namely I.Sc.—2 years and First M.B., B.S.—1½ years. As a result of abolition of the Intermediate course one year is sacrificed in favour of school education. The 3 year degree course has to be computed against 2½ years now required after the first year of I.Sc. for completion of First M.B., B.S. course. As the B.Sc. degree is proposed to be awarded at the end of the pre-medical and pre-clinical course, in the fitness of things the subjects of chemistry, physics, biology, physiology and anatomy have to be fitted to 3 year degree course. Timing of these subjects to the 3 year period and whether they should be taught concurrently or consecutively and whether some groups are to be taken concurrently and some to be taken consecutively are matters of detail. These have to be worked out by authorities competent to frame regulations. The 3 year degree course provides 9 effective terms each of 3 months duration, i.e. July to March is the effective academic year. At present anatomy and physiology are covered in 18 months. Physics, chemistry, and biology as also anatomy and physiology have to be covered in 3 years of effective 9 terms.

In the preparatory one year course in college or in the final class of the high secondary school, as the case may be, the student intending to take up the medical course for a professional career should take up a preliminary course of study on biology, physics and chemistry in addition to the language subjects and one from the humanities. The English language has to be taught to ensure the requisite power of expression ; humanities are intended for broadening of outlook and the science subjects will be helpful in the professional subjects. Radhakrishnan Commission strongly recommend the inclusion of humanities in the professional, technical and science courses. It is proposed that one of the humanities like civics, anthropology, sociology, ethnology should be included along with science subjects. English is not the medium of instruction in the secondary school nor will be the medium of instruction in the higher secondary school course. But for many years to come English will continue to be the medium of instruction in the medical and the professional and technical colleges. Inability of proper expression has been found to be the greatest impediment of the students these days. Study of English should be continued throughout medical studies to ensure proper imbibation and easy expression.

Man is justly proud of his phenomenal achievements in the material world. There is however a challenge to his achievements. There is the grim probability of total annihilation from nuclear energy which man himself has unleashed. Spectacular material developments in the physical, biological and social sciences during the last two decades have thrown a challenge to the medical profession. Are we keeping our profession and practice of medicine attuned to the spirit of our age? Have we developed a suitable machinery for the rational imbibation and utilisation of new knowledge by ourselves and our successors? Questions like these are posed before us. In August 1953, a World Conference on Medical Education was organised in London under the auspices of the World Medical Association. Many points of fundamental re-orientation of medical education like selection of students and teachers and method of approach were discussed. Integration of sub-

† Difficulties may arise with regard to correlation teaching utilisation of clinical cases.—Ed., *J. Indian M. A.*

jects taught was emphasised. Overemphasis on specialisation was regretted. It is suggested that anatomy and physiology should be studied as one subject, so also medicine and surgery. All non-essentials should be eliminated and early basic knowledge is to be imparted for production of basic doctors. Social medicine should be given a prominent role to play.

Professional conception has progressively changed from "disease in man" to "man in disease", from man the individual to man in society. Study of anthropology, ethnology, civics, and sociology is required to know *Homo sapiens* in all his attributes. Dr. K. C. K. E. Raja has recently discussed the application of new ideas on medical education to India's conditions. Far reaching changes in the content and character of medical education are in the offing. With the improvement of standard of secondary school education, proper selection of students and teachers and rationalisation of the quantum of medical knowledge to be imparted we may optimistically hope to reduce the long period of pre-medical and medical education. But in the present circumstances a three year B.Sc. degree course for pre-medical studies and 3 year medical degree course appear to be inevitable. In the set up under regulations already in force students take 7½ years after matriculation for a medical degree. In the set up envisaged in this communication, 8 years will be required after secondary school course.

Summary

This communication reviews the position of professional degree courses of study in the light of the proposed 3 year degree course and abolition of the Intermediate course and focusses attention on the difficulties in fitting the professional degree courses in the new set up. The following suggestions are made for re-organisation of medical courses in the set up of 3 years degree course :

1. In the final class of the higher secondary school (or in the one preparatory year in the college), biology, chemistry, physics should be taught in addition to English and one of the humanities.
2. Biology, physics and chemistry as also anatomy and physiology be taught in the 3 year B.Sc. degree course.
3. English and one of the humanities be taught throughout the 3 year B.Sc. degree course.
4. All clinical subjects should be taught only in the medical colleges for 3 years as now ending in the only one M.B., B.S. examination Part I and Part II.

CASE NOTES

SARCOIDOSIS WITH HEPATIC INVOLVEMENT

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Hutchinson in 1875 for the first time described skin lesions of sarcoidosis and in 1898 called it 'Mortimer's malady' after one of his patient's name. Basnier in 1889 gave it the name of 'Lupus Pernio' as it resembles chilblain lupus. Boeck in 1899 gave the first pathologic picture of the skin lesions. Kissmeyer was one of the first to recognise that liver and other digestive organs as well as skin, bones and lymph glands are involved in this disease. Schaumann (1924) described the generalised systemic characteristics of the disease with predilection for lymphoid tissue.

Liver is involved in 65-75 per cent of cases and is the most commonly involved abdominal organ. It is palpable only in a fraction of cases which show morphological changes, which means that the liver may be the seat of sarcoidosis without clinical enlargement and splenic enlargement is detected as frequently as hepatic enlargement. Liver biopsy may be of great help in the diagnosis of sarcoidosis. Hepatic involvement has been demonstrated by needle biopsy in 75 per cent of the cases of sarcoidosis.

Case Report

P., Hindu, primipara, aged 20 years, was admitted on 13-5-1954 with the following complaints :

Distension of the abdomen, cough with expectoration and slight fever, for 3 months ; swelling of the feet from last one month.

Menstrual history was normal. Six months back she had a normal delivery. There was nothing of importance in personal or family history. About three months after delivery she started having low temperature. Her abdomen gradually began to increase in size.

On examination she was a young well built and well nourished lady with huge distended abdomen. There was oedema of the feet. Neck veins were slightly prominent but there were no prominent veins on the abdominal wall and there was no jaundice. Pulse rate was 132 per minute, blood pressure 125/85 mm. Hg.; the temperature varied between 99°-101°F, the girth of the abdomen measured 39 inches at the umbilicus. The lymph glands were not enlarged in any part of the body and the spleen and the liver could not be felt. The liver was palpable eight fingers below the costal margin after tapping of the ascitic fluid. It was firm and smooth with sharp edge and but not

tender. The spleen was enlarged two fingers below the costal margin. There were signs of pleural effusion in both the bases being more marked on the left.

Investigations—On 15-5-1954, R.B.C.—3·82 million per c.mm.; W.B.C.—8600 per c.mm. with polymorphs 80 per cent, lymphocytes—18 per cent, monocytes—2 per cent ; E.S.R. 22 mm. per hour.

Urine and stool showed nothing abnormal.

Sputum was repeatedly negative for A.F.B.

The skiagram of the chest showed fluid on both the bases more marked on the left side. The hilar glands were normal.

Ascitic fluid tapped on 17-5-1954 had a specific gravity of 1012. The pleural fluid was also aspirated and found to be a transudate and was sterile on culture.

Blood for Brucella agglutination—negative. Widal test—negative. Mantoux—positive (1 : 1000)

She was first put on anti-tuberculous treatment but showed no improvement. On 22-6-1954 the liver biopsy showed 'fatty infiltration'.

The liver functions tests on 29-6-1954 were as follows :

Thymol turbidity—1·6 units.

Thymol flocculation—0 unit.

Colloid gold flocculation—0.

Blood proteins : Total—5·83 g. per cent with albumin—2·39 g. per cent and globulin—3·53 g. per cent.

As there was fatty infiltration of the liver she was put on lipotropic factors by mouth and crude liver extract intravenously, starting with ½ c.c. diluted with glucose and gradually increasing upto 5 c.c. and was also put on good diet supplemented with proteins. With this she showed marked improvement. At this stage the liver was palpable only two fingers below the costal margin.

A second liver biopsy was done on 24-2-1954 which showed 'sarcoidosis of the liver' (Fig. 1, *vide* Plate).

Though not common a granulomatus lesion can be missed as after all a small piece of the liver tissue is removed. When biopsy was done for the second time at a different site sarcoidosis was detected. Fatty infiltration is not associated with fever and all other investigations were negative for fever, though unusual sarcoidosis could explain her low grade pyrexia etc. After sarcoidosis of the liver was reported by the pathologist the following additional investigations were done :

Serum calcium—11·5 mg. per cent

Alkaline phosphatase—21 units.

Urine was repeatedly negative for Bence Jones proteins.

The skiagram of the skull, the hands and feet did not show any abnormality.

Liver function tests on 29-9-1954 showed :

Thymol turbidity—0 unit.

Thymol flocculation—0 unit.

Colloid gold flocculation—0.

Blood proteins : Total—6·17 g. per cent with albumin—3·4 g. and globulin 2·77 g.

At the time of discharge on 27-9-1954 there was no ascites and the abdominal girth which was 39 inches on admission was only 25·5 inches. The spleen and the liver were not palpable and there was no pleural fluid. The patient was again seen at the end of December 1954 and was in good health and nothing abnormal was detected.

Discussion

General incidence of sarcoidosis as a cause of liver disease is 2 per cent. In this case tuberculin test was positive and it can be positive in 10 per cent of the cases. The diagnosis was based on liver biopsy and even the first liver biopsy showed only fatty infiltration, there is no treatment for sarcoidosis except protecting the liver by dietary and other means which had already been done in this case. On second biopsy which was done to check the improvement, sarcoidosis was diagnosed. Barring other lines of treatment liver intravenously is much better in protecting liver than when given by other routes—Michail *et al* (1953) and my own observations in over 25 cases.

Disease tends to run a chronic course. Death rate is about 3 per cent in sarcoidosis. Importance of the case lies in the fact that very few cases of sarcoidosis of the liver have been reported in this country. With more and more liver biopsies probably more cases will be diagnosed.

Summary

A case of sarcoidosis is reported in which the liver was the primary site of involvement as shown by hepatic and splenic enlargement, ascites etc.

The liver biopsy is the most important method in diagnosis.

The patient showed marvellous improvement on protective treatment for the liver, viz., proteins, lipotropic factors and crude liver extract intravenously.

History and the main symptomatology are described.

Acknowledgment

I am thankful to Dr. J. C. Sarin of Pathology Department of S. M. S. Medical College, Jaipur, and to Dr. P. N. Wahi, Professor of Pathology and Head of Liver Diseases Research Unit, I.C.M.R., Medical College, Agra, who confirmed the diagnosis of sarcoidosis of liver.

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A FOREIGN BODY ACROSS THE BACK

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A boy aged 17 years was brought to the out-patient department of the District Hospital, Chitaldurg on 22-3-1955 with part of a stick jutting out of his left axilla. He was lying prone and could not turn to a side. The history was that he fell down from a tree, about 20 feet high, right on a bamboo stick held vertically by his companion who was on the ground. The stick pierced through his back for part of its length and then partially broke. After the boy reached the ground the stick was severed by the companion at the point at which it was partially broken and the boy brought to the hospital in a conveyance within four hours of the accident.

The boy was greatly alarmed and would not answer questions asked of him. A bamboo stick half an inch in diameter was sticking out of the patient's left axilla, the part protruding measuring 2½ inches in length (Fig. 1). The end of the protruding bit was jagged. Of the other end of the stick about 2 inches was seen as an elevation underneath the skin and subcutaneous tissues in the right infraspinatous region (Fig. 2). From the point of entry in the axilla to the elevation in the infraspinatous region, the stick could not be seen or felt. The left axilla was splattered with blood streaks and clots (Fig. 3). No assistance regard-

FIG. 1

FIG. 2

FIG. 3

ing the course of the stick was obtained from the radiologist as the stick was not radio-opaque. The boy would not turn to a side, much less lie on his back and so the movements of the diaphragm or the pulsations of the heart could not be made out radiologically.

The patient was not very dyspnoeic. So assuming that the course of the stick was extrathoracic, with great trepidation, one of us (K.B.H.) took the boy to the operation theatre and under light general anaesthesia tried to dislodge the stick. With a steady firm pull from the protruding portion, he was able to remove the stick. There was slight oozing of blood from the axillary wound which was lightly plugged with gauze. The patient was given 5 c.c. of haemostatic serum 58 mm. I.M., and next day penicillin 4 lac units. The plug was gradually removed day by day and the patient made an uneventful recovery and was discharged on 13-4-1955.

The stick measured 12 inches in length and was made of solid bamboo, the piercing end being rounded and blunt.

The stick had not obviously entered the thoracic cavity but was lying on the posterior aspect of the thoracic cage. It must have been underneath the left scapula. It must have gone through the left latissimus dorsi, left teres major, underneath the left subscapularis and through the left rhomboideus major, coming to lie on the opposite side under or on the right trapezius. It is indeed fortuitous that none of the big axillary vessels had been opened by the stick. The stick must have come in the way of the boy, providentially, in that it arrested the force of his fall and helped to prevent serious cranial injury.

MUCOCELE OF THE APPENDIX

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Mucocele of the appendix is an uncommon condition. Woodruff and McDonald (1940) reported 0·3 per cent incidence among appendicectomies in the Mayo Clinic over a period of 24 years. Mayo and Fauster (1932) reported 76 mucoceles in 31,200 appendicectomies giving a percentage incidence of 0·24. Weaver (1937) observed 0·11 per cent incidence in 6,225 appendices removed.

Fere appears to have been the first to style enlargements of the appendix filled with mucus or pseudomucin as "mucoceles" although Rokitansky (quoted by Weaver, 1937) is credited to have described their pathology in 1842 and later Virchow (1863). This condition is most common at past middle age and a slightly greater incidence is observed in the female.

Mayo and Fauster (*loc. cit.*) and Dannruther (1936) described the mode of origin of mucocele of the appendix and pseudomyxoma peritonei, as obstruction, absence of gross infection, secretion of mucus faster than absorption, distension, formation of diverticula and rupture with the formation of secondary pseudomyxoma peritonei. Mucocele of the appendix may assume the size of man's head or retain its normal size. The shape is determined by the site of obstruction. In the early stages the lumen is filled with thin, sticky and slightly turbid fluid. On reabsorption of the fluid it becomes gelatinous and thicker. One may find globular semi-transparent bodies. The contents of the mucocele are said to be bactericidal and when kept exposed for many days do not get infected and may account for the nondevelopment of gangrene or appendicitis. The nature of the mucocele wall is variable. In the initial stages one often finds hyperplastic secretory mucosa with cuboidal or columnar goblet cells, considerable round cell infiltration of submucosa and hypertrophy of muscle coat. With increasing distension atrophy of mucosa sets in, epithelial cells are totally absent and replaced by connective issue. With thinning of the wall and increase in internal pressure diverticula may form on the mesenteric or antimesenteric borders. Rupture of either diverticula or appendicular wall resulting in pseudomyxoma peritonei completes the evolution and termination of mucocele appendix.

Fraenkel (1901) is credited to have been the first to note pseudomyxoma peritonei complicating cystic disease of the appendix. This complication is the result of inflammation following spilling of the appendicular contents and is not due to metastases since all evidence pooled failed to disclose malignant change in the morbid condition. The frequent coexistence of mucocele appendix, ovarian pseudomucinous cystadenoma and pseudomyxoma peritonei in females was reported and Ries (1924) showed that it is unlikely to be the result of metastases.

Mucocele of the appendix produces vague and indefinite symptoms and pre-operative diagnosis is difficult. Pain in the lower quadrant of the abdomen is apt to be severe and localised. Initial epigastric or paraumbilical pain, characteristic of acute appendicitis is often wanting. Fever, leucocytosis and muscular rigidity are frequently absent. Sometimes symptoms of intestinal obstruction owing to pressure of mucocele on the loops of intestine are met with. Mucoceles are at times large enough to be palpated through the abdominal wall, facilitating diagnosis. X-ray recognition of calcific spots in the cyst wall and filling defect in the appendix after a barium swallow are useful aids in the diagnosis. Recovery is the rule provided no spilling has occurred into the abdomen either before or at the time of removal of the appendix.

Clinicopathological observations in a case of simple mucocele appendix and another associated with diverticula recorded below substantiate some of the facts referred to above.

Case Reports

Case 1—M. V., male, aged 34, complained of pain in the epigastrium of six years' duration. For the last two years he was troubled with periodical vomiting. The pain appeared one hour after taking food and lasted for several hours. Ingestion of alkalies afforded slight relief. He complained of slight pain over the right iliac fossa too. On examination the patient appeared ill-nourished. There was visible peristalsis of the stomach, and tenderness over the epigastrium and right iliac fossa.

Operation notes—Under spinal anaesthesia the abdomen was opened on 4-11-1955 and gastro-enterostomy was done to relieve the pyloric stenosis. Appendicectomy was done. The appendix was enlarged. The patient was discharged on 20-11-1955.

Morbid anatomy and histology of the appendix—The appendix was uniformly enlarged and resembled a sausage in shape. It was pale yellow in colour and stretched over its serous coat were congested vessels (Fig. 1, *vide* Plate). The tumour was fluctuant. Sectioned surface disclosed jelly like material filling the lumen of the appendix, (Fig. 2, *vide* Plate). Microscopic study of the sections revealed a single layer of tall columnar epithelium lining the lumen of the appendix. The lymph aggregates usually found in the submucosa were absent (Fig. 3, *vide* Plate). Deep in the submucosa and extending into the muscle layer were observed infiltrates of glands lined by similar cells. No cytological evidence of malignancy was noticed in any of the sections studied. There was conspicuous absence of inflammatory reaction.

Morbid anatomical diagnosis—Mucocele of the appendix.

Case 2—V, male, aged 45 years, sought surgical aid on 10-5-1954 for indirect right inguinal hernia.

At the time of operation for the inguinal hernia, appendix was found enlarged and cystic. It was excised. The patient denied of having suffered from acute or recurrent attacks of appendicitis. He was discharged a fortnight later.

Morbid anatomy and histology of the appendix—The appendix was 5″ long and 1″ wide. Multiple diverticulae were seen projecting from serous surface. They were of the size of a split pea (Fig. 4, *vide* Plate). On incision mucoid material was released and every one of the diverticulae could be made out as small tunnels extending from the mucosa to the serous coat. Histological sections of the appendix studied revealed epithelial lining, only in some segments of the appendix while in the rest, there was complete atrophy of the same (Fig. 5, *vide* Plate) and collagen fibres of variable thickness were found instead. Cystic dilatation of the cavity was observed. Mucin like material was noticed. Pouches burrowing deep into the muscle coat were seen. At these spots the muscle coat was wanting. There was conspicuous absence of any inflammatory cells. These gross and histological findings were consistent with mucocele of the appendix with diverticulae.

Comment

Case 1 exemplifies an early case of mucocele of the appendix, since the epithelium of the lumen was intact all through and was proliferative in character. Case 2 was typical of the advanced stage of mucocele as was evidenced by the atrophy of the lining epithelium in several segments and thinning of the appendicular wall with formation of multiple diverticulae. In both the cases the finding of the morbid anatomical lesion was incidental and neither patient presented symptoms pointing to appendicular mischief. This is not strange of mucocele of the appendix. Complete absence of inflammatory cells in the two specimens histologically studied is in total agreement with the findings reported by others.

Summary

1. Review of literature pertinent to mucocele of the appedix is recorded.

2. Asymptomatic nature of the mucocele appendix is illustrated by the case reports recorded.

Acknowledgment

We are thankful to Drs. C. Krishniah and Immamudin for the case notes. We acknowledge with pleasure the help rendered by photo artist Edwin.

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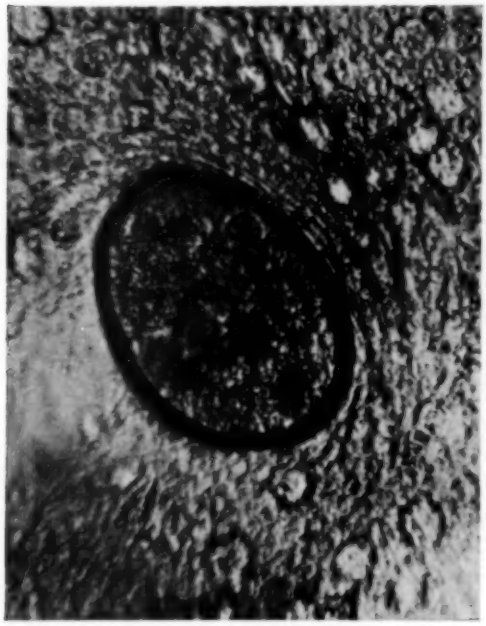

Fig. 1—Showing ovum of *P. westermani.*

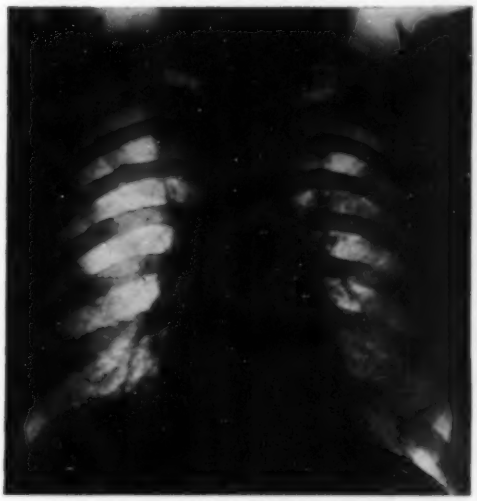

Fig. 2—Showing rounded calcified focus in the first interspace.

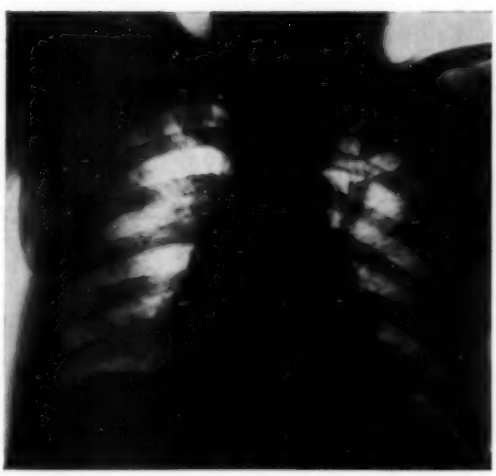

Fig. 3—Showing hazy opacities over lower right mid zone and left mid and lower zones.

Fig. 1—Microphotograph showing a tubercle composed of epithelioid cells and two giant cells. There is no caseation and no lymphocytic infiltration. The liver cells are showing fatty degeneration.

NAG AND GHOSH—*Paragonimiasis of the Lung* *(pp. 52-53)*

SARIN—*Sarcoidosis with Hepatic Involvement* *(pp. 60-61)*

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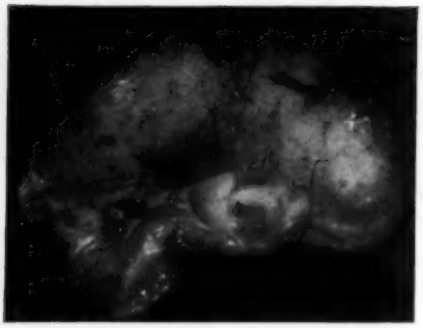

Fig. 1 (Case 1)—Photograph shows shortened and much distended appendix of oval shape—typical of mucocele. The stretched blood vessels are seen over the serous coat.

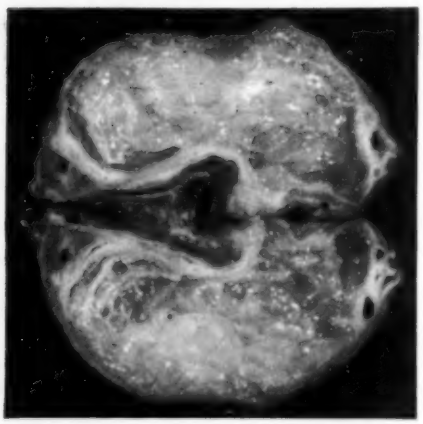

Fig. 2 (Case 1)—Photograph illustrates sectioned surface of the mucocele appendix. The gelatinous contents are clearly seen.

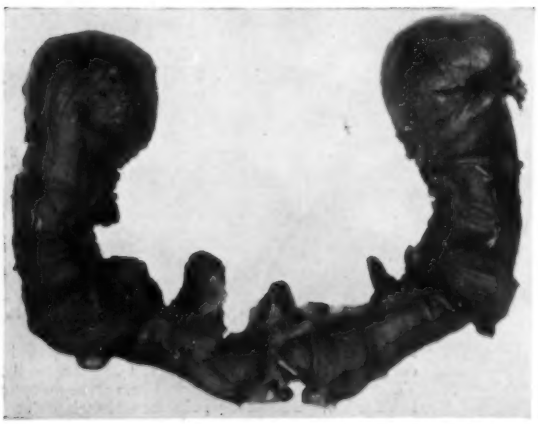

Fig. 4 (Case 2)—Photograph shows two halves of opened out appendix. Careful inspection discloses mucosal pits leading to the diverticulae.

Fig. 3 (Case 1)—Photomicrograph illustrates much distended lumen of the appendix and the same lined by a continuous layer of tall columnar epithelium. Inflammatory cells are conspicuously absent. (H. & E. × 60)

Fig. 5 (Case 2)—Photomicrograph illustrates segment of mucocele appendix, a portion of the wall shows normal epithelium of appendix in tact while in the other portion there is total absence of the same and thinning of the wall and diverticula are well seen. (H. & E. × 100)

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CARBONIC ANHYDRASE INHIBITOR

Carbonic anhydrase is an enzyme present in highest concentration in red blood corpuscles[1] and the renal cortex[2]. It is also present in the mucous membrane of the stomach, lens, retina, brain, liver, spleen and testis[3]. The enzyme is responsible for rapid conversion of metabolic CO_2 into H_2CO_3 to be carried by red blood corpuscles to the pulmonary bed, where the same enzyme reconverts H_2CO_3 into H_2O and CO_2 for rapid excretion of the latter through the lungs. Thus the reversible process of loading and unloading of CO_2 is carried rapidly with the help of carbonic anhydrase.

The acidification of urine is due to rehydration of CO_2 by tubular transport of H^+. This process of acidification is dependent on the activity of the enzyme—carbonic anhydrase. The formation of bicarbonate by the process of ionisation and its reabsorption is, therefore, indirectly dependent on the activity of the enzyme. Out of a total 5000mM of bicarbonate filtered by the kidneys only 1-2mM is allowed to escape each day, and thus the exhaustion of bicarbonate storage of the body is prevented.

The action of carbonic anhydrase is arrested by an inhibitor of the nature of a pseudoglobulin, normally present in the human plasma[3]. The process of inhibition is so adjusted that no metabolic upset is allowed to occur.

With the advent of sulphanilamide therapy certain interesting changes in the acid-base balance of the blood were noticed, and a few cases of acidosis were reported[4, 5]. Sulphanilamides were found to increase the urinary excretion of N^+ and K^+ resulting in diuresis and alkalinisation of the urine. It was observed[6] that the alkalinisation of the urine was due to the inactivation of the enzyme carbonic anhydrase. The diuresis of sulphanilamide is a side effect, although sulphanilamide was used as a diuretic agent by Schwartz[7] in the treatment of a case of congestive cardiac failure with oedema, with beneficial result. However, continued administration of sulphanilamide for this purpose is too hazardous because of its toxic effects.

Recently a sulphanilamide derivative acetazoleamide has been developed, which specifically inhibits the actions of carbonic anhydrase at various sites in the body. It is 500 times more potent carbonic anhydrase inhibitor than sulphanilamide and less toxic. Following a single oral dose of this unsubstituted sulphanilamide compound, inhibition is effected on the carbonic anhydrase action on the renal tissue. The bicarbonate reabsorption is inhibited in the renal tubules and there is an increased excretion of urinary bicarbonate. This is accompanied with an increased excretion of Na^+ because of less reabsorption and a loss of K^+ due to increased tubular excretion.

With the loss of sodium bicarbonate there is an associated loss of iso-osmotic equivalent of water. Diuresis sets in, with diminution in the volume of accumulated extracellular fluid. Whether Na^+ or K^+ will be excreted is dependent on the intake of Na^+[8]. If the subject is on a salt restricted diet more K^+ is excreted than Na^+, the primary object of reducing oedema by carbonic anhydrase inhibition not only fails, but a state of K^+ depletion develops. Schwartz *et al*[9] are of opinion that the response of acetazoleamide as a diuretic agent depends on the initial blood bicarbonate level. In their series all patients who responded to acetazoleamide had high initial blood bicarbonate level.

The effect of a single oral dose (250 mg.) lasts for about six hours. The drug has no cumulative action, but has a preference for red blood corpuscles which are saturated at a fairly low level[10]. This causes early inhibition of the erythrocytic carbonic anhydrase traversing the lungs and may by itself lead on to retention of CO_2 and acidosis.[9] This has, however, been regarded as a theoretical hazard in the use of acetazoleamide. It has been supposed that the erythrocytic carbonic anhydrase inhibition

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is not sufficient to impair CO_2 exchange to an appreciable extent.

As acetazoleamide lowers the arterial blood CO_2 level it has been used as an ideal drug to produce diuresis and at the same time to reduce respiratory acidosis, which occurs in heart failure of emphysema. Good response has been claimed in cases of respiratory acidosis[11, 12]. Oral acetazoleamide was used in 17 patients with severe congestive cardiac failure due to cor pulmonale[9] and in approximately half the trials there was a large diuresis with considerable clinical improvement. Most of the patients became slightly more acidotic but blood pCO_2 did not alter to any extent. Chatterjee *et al*[13] obtained good results in hypertensive congestive failure and cor pulmonale but in the experience of Rubin *et al*[14] there was no significant diuresis with acetazoleamide in patients with oedema due to congestive cardiac failure. Unsatisfactory response was also found in chronic respiratory failure[15] and chronic cor pulmonale[16]. In another series of Simpson's cases[17] five patients were adversely affected by the drug. Although the arterial CO_2 was reduced, the pCO_2 was not significantly lowered and indeed raised.

Acetazoleamide has also been used in the treatment of glaucoma. The mode of action is still disputable. There is a lack of corroboration even in experimental observations of Langham[18] and Green[19]. Intraocular tension is unaffected by local application as drops or subcutaneous injections but a single oral dose of 500 mg. causes a considerable fall in the intraocular tension and the effect lasts for about 5-6 hours[20]. Perkins[21] is of opinion that the drug acts locally by inhibiting the carbonic anhydrase present in the iris and ciliary bodies. The view that the tension is diminished because of systemic dehydration is strongly opposed by Becker[22]. According to him, diuresis and fall of intraocular tension are unrelated. Acetazoleamide is quick-acting and intraocular pressure is diminished within 60-90 minutes[23] It is valuable in acute congestive glaucoma[21] and is a preoperative drug[21, 23] of choice in acute glaucoma of inflammatory origin. The drug is not beneficial in long standing congestive attacks.

The commonest side effect attendant on the use of acetazoleamide is development of mild metabolic hyperchloraemic acidosis[9, 14]. This is due to loss of urinary bicarbonates leading to fall in the plasma bicarbonate level. The pH of blood becomes low. Hyperchloraemic acidosis with plasma chloride as high as 129 mEq/l and a low pH of 7·14 has been reported[14]. Agranulocytosis with normoblastic marrow has been met with[24]. Continued use of acetazoleamide for a period of 1¼-8½ months in 30 ambulatory patients were studied by Massumi and Evans[25]. Paraesthesia, dizziness and headache developed within a period of ½-1 hour after the ingestion of the drug without any change in the serum electrolytes. Fatigue and drowsiness occurred along with fall in the serum K^+ and CO_2 combining power. Chatterjee *et al*[13] also noted development of confusion and incoherence along with fall of serum K^+. Paraesthesia and drowsiness or disorientation are probably due to direct action of the drug on the nerve cells[26]. Simpson[17] suggests that the fluctuations in the mental state are related to abrupt changes in the arterial saturation of CO_2 rather than to the effect of acetazoleamide. Disorientation[15, 27] due to acetazoleamide and death[13] has been reported in cirrhosis of the liver. Epileptiform convulsions[13] cannot be explained on the face of anticonvulsant action of the drug.[26]

Equivocal recommendations have been made regarding clinical application of the drug particularly with reference to its use in cirrhosis of the liver and chronic cor pulmonale. Evaluation of the clinical effects based on responsiveness to diuresis without correlated studies of blood biochemistry should not be conclusive. Acetazoleamide has the greatest advantage of being an oral diuretic and effective in a single dose of 250 mg. But a drug which disturbs the acid-base balance of the body has its potential dangers and should be used with caution.

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CURRENT MEDICAL LITERATURE

Digestive Ailments of the Aged

SNELL (*Minnesota Med.*, **38** : 1314, 1955) writes :

Acute or reactivated peptic ulcer is relatively common in patients over 60 years of age, and both the incidence and gravity of haemorrhage appear to increase with age. Obstruction is noted in 10 to 15 per cent of old patients with peptic ulcer. Gallstones are probably the commonest single cause of severe abdominal pain in patients over 65 years of age and neither the location nor the exact character of the pain is of much diagnostic value. As a rule the old patient with gallstones tolerates operation well and there are few contraindications. The major problem referable to the colon in old patients is constipation. The patient should be persuaded that the intestine need not be emptied every day and that no physical harm will result from an overdue stool. Diarrhoea in old people is troublesome; occasionally it is associated with achlorhydria and probably also with deficient intestinal absorptive capacity. This may be relieved in part by parenteral administration of liver extract and the use of vitamin concentrates. Although complications of cirrhosis of the liver, chiefly haemorrhages from varices and episodes of hepatic necrosis, are often fatal in old persons, some of the older cirrhotic patients may survive for years in a fair state of health. In many of the patients of advanced age, the complaints, however bizarre and atypical, are likely to have an organic background. The diagnosis of the organic disease is often far from easy, chiefly because the usual clues that lead to diagnosis are absent or distorted. If the symptoms are of brief duration, full investigation is compulsory. If they are a continuation of those that have plagued the patient all his life, investigation is still essential, if only to provide the necessary reassurance and support essential to treatment. Symptomatic treatment without full investigation is risky at best, and temporizing on such a basis is the cause of much disability and many fatalities in the aged. It should not be forgotten that persons who reach the eighth decade of life are of a rather special pattern and not infrequently are made of better biological materials than their juniors. Their tolerance of operations may be amazingly good and their recovery from even major procedures rapid. Here is a field in which all physicians can participate in reducing mortality and morbidity rates and in making life more bearable for many persons who have passed their prime.

Duodenal Ulcer as an Occasional Cause of Obstructive Jaundice

SNAPE (*Ann. Int. Med.*, **42** : 1001, 1955) writes that despite the close anatomic relationship between the extrahepatic biliary system and the duodenum, jaundice is infrequently reported in patients with duodenal ulcer. In a period of three years, however, the author observed six patients in whom duodenal ulcer was associated with jaundice. Reflection on the anatomy of the area adjacent to the duodenum suggests that the duodenal ulcer may cause occlusion of the common bile duct (1) by means of impingement of the ulcer or its inflammatory reaction on the biliary papilla—this is an uncommon mode of obstruction; (2) by compression of the common bile duct due to inflammation and oedema of the pancreas resulting from a posterior penetrating ulcer since in 75 per cent of the population the common duct travels behind the superior portion of the duodenum and is embedded in the pancreas; and (3) through involvement of the gastrohepatic ligament in deeply penetrating or perforating ulcers. The elevated alkaline phosphatases, the prompt response to vitamin K, the absence of urine urobilinogen, the prompt recession of jaundice with ulcer therapy, and liver biopsy all tend to confirm the presence of obstructive jaundice in these patients with duodenal ulcer. Moreover, surgical exploration confirmed this hypothesis in three of the patients. The author concludes that duodenal ulcer may cause obstructive jaundice in some patients.

Pharmacological Properties of Chlorpromazine, Promethazine, and Pethidine

KOPERA AND ARMITAGE (*Brit. J. Pharmacol.*, **9** : 392, 1954, Ref. *Abst. World Med. Bull.*, **18** : 8, 1955) write :

In anaesthetic practice chlorpromazine is usually given in combination with promethazine and pethidine, so that it is difficult to judge the contribution made by each to the joint effect. The authors, working in the Department of Pharmacology, University of Oxford, have therefore made a quantitative and qualitative comparison of the pharmacological properties of the three drugs.

The results were as follows : All three drugs lowered the body temperature of the mouse, chlorpromazine being about 30 times as effective as the other two. Chlorpromazine was also the most effective depressant of muscular contraction when tested upon the gastrocnemius muscle of the cat and a phrenic-nerve-diaphragm preparation of the rat. Its action was not curare-like but directly upon the muscle, the response to both direct and indirect stimulation being abolished. The authors suggest that the lowering of body temperature produced by the drug may be the result of lowering of tonus, and therefore of heat-production, of skeletal muscles. Large doses of hexamethonium produced only a slight fall in body temperature, showing that the effect of chlorpromazine does not depend upon a ganglion-blocking action.

In a study of chronic toxicity it was found that young rats failed to grow during the first few days of continued administration of the drugs. The fact that pethidine produced not drowsiness but excitement may perhaps be an indication that it affected the metabolic rate. After a few days tolerance to all three drugs was acquired, and the test rats grew at the same rate as controls. Comparison of the doses required to retard growth showed that chlorpromazine was about five times as toxic as the other two drugs.

No potentiation was observed upon the analgesic effect of morphine, and of the three drugs only promethazine showed even an additive action. Chlorpromazine was much more effective than promethazine or pethidine in prolonging pentobarbitone anaesthesia in mice. Chlorpromazine was the most active antagonist of the action

of adrenaline on the vessels of the rabbit ear, the blood pressure of the spinal cat, and the isolated rabbit uterus. It had very little antagonistic action against noradrenaline, and it is therefore suggested that noradrenaline could be used to restore the blood pressure in patients treated with chlorpromazine.

Antiacetylcholine activity was tested on the isolated ileum of the guinea-pig, the mouse pupil, and salivary secretion in the cat. Promethazine was the most active of the three drugs; chlorpromazine was more active than pethidine on isolated gut, but showed no mydriatic activity at all. Chlorpromazine had about one-thirtieth of the inhibitory potency of atropine upon salivary secretion. All three drugs showed antihistaminic activity upon guineapig ileum and bronchioles, promethazine being the most potent and pethidine the weakest. The antihistaminic action was greater than the anti-acetylcholine action. Chlorpromazine exhibited the strongest and pethidine the weakest local analgesic effect when tested on intracutaneous weals in guineapigs.

It is concluded that in some respects chlorpromazine is more active than promethazine or pethidine, but that in general all three substances have the same type of pharmacological action.

Effects of Rauwolscine

DAS AND OTHERS (*India J. M. Research*, **43** : 101, 1955) found Rauwolscine, an alkaloid of *Rauwolfia canescens*, to have a hypotensive effect. A peripheral vasodilator, a sympathecolytic, a central vasotonic, and a reflexblock activity had been demonstrated earlier. The authors' results were compared with those obtained by using alkaloids of *Rauwolfia serpentina* in cats and monkeys. A marked fall in peripheral resistance occurred due to vasodilatation, but there was no significant alteration in the cardiac output. The effect of this alkaloid was best obtained when it was given intracisternally. Intraperitoneal injection gave an identical response when larger doses were used, but there was a long latent period when this route was used. After intravenous injection the fall in peripheral resistance was preceded by a transient period of cardiac irregularities and increased peripheral resistance. These findings thus point to a predominantly central origin of the haemodynamic response.

Serpasil and Coagulation of Blood

KHIRWADKAR (*Indian J. M. Sc.*, **9** : 160, 1955) reports that a 32-year-old man was admitted to a hospital for malignant hypertension. He was given two tablets of reserpine and 30 mg. of phenobarbital three times daily. After about three weeks, venesection was performed to relieve dyspnoea. The next morning it was noticed that the blood removed from the patient's vein the evening before had not clotted. In order to find out whether the dalay in clotting was due to the action of the drugs the patient was receiving, 5 c.c. of blood was removed from 12 other patients in the ward who were not receiving the same drugs. To four of these samples reserpine (Serpasil) was added; to another four, phenobarbital alone was added; and to the remaining four, both were added. The second group showed clotting but the first and third did not. In another patient who was being treated with reserpine the prothrombin and clotting times were found to be prolonged but the bleeding time and platelet count were normal.

Antipyretic Activity of Some Indigenous Drugs

GUJRAL AND OTHERS (*Indian J. M. Research*, **43** : 81, 1955) conducted a series of animal experiments to determine the antipyretic effectiveness of 31 indigenous drugs. Aspirin was used as the standard for comparison. Fever was produced by subcutaneously injecting a 15 per cent suspension of dried brewer's yeast and 2 per cent acacia in isotonic sodium chloride solution. A decoction of the crude drug was introduced into the stomach. Control studies were made with a 2 per cent solution of acacia in isotonic sodium chloride solution. The standard drug was also dissolved in a solution of 2 per cent gum acacia in isotonic sodium chloride solution and administered orally. Only two drugs, Wrightia tinctoria (*Indra Jav*) and Woodfordia floribunda (*Dhaya phul*), appeared to be superior to aspirin in their antipyretic action. The active principles of these drugs are being studied.

Intermittent Isoniazid Treatment

SERI AND OTHERS (*Beitr Klin. Tuberk.*, **113** : 234, 1955, Ref. *J.A.M.A.*, **158** : 1143, 1955) write that intermittent treatment with isoniazid given on three consecutive days followed by a four day drug-free interval was given a trial in mice and men. Intermittent treatment of the animals was started with a daily dose of 15 mg. of isoniazid per kilogram of body weight on the first day after they had been inoculated with tubercle bacilli strain H 37 Rv. The intermittent treatment protected the animals against the development of tuberculosis in the same degree as the daily treatment with isoniazid did. Sixty patients with pulmonary fibrocavernous tuberculosis were given intermittent treatment with isoniazid at the State Tuberculosis Hospital in Budapest, Hungary. On three successive days the patients received a daily dose of 10 mg. of isoniazid per kilogram of body weight and in addition 10 to 16 g. of p-aminosalicylic acid. In the next four days the patients did not receive any of the two drugs. This course of treatment was continued for 18 weeks. The results of the intermittent treatment in these patients were compared with those of the daily treatment of 50 patients with pulmonary tuberculosis with 5 mg. of isoniazid per kilogram of body weight and 4 to 12 g. of p-aminosalicylic acid for 16 weeks. Results obtained with the intermittent treatment were superior to those with daily treatment since there was more pronounced roentgenologic improvement in general and concerning the cavities, the sputums of a larger number of patients became negative, and the improvement in the sedimentation rate was more pronounced. Development of resistance to the drug was slower, and the patients were able to tolerate larger doses of p-aminosalicylic acid. In the presence of moderate resistance, when small doses were no longer effective, improvement was still obtained with intermittent administration of the drugs. The incidence of undesir-

able side-effects was not higher with intermittent than with daily treatment. Consequently, this method of treatment is recommended for patients who are in the subacute stage of the disease and who require prolonged treatment.

Nicotinic Acid in Acne Vulgaris

MARCHAND (*Military Med.*, **117** : 60, 1955) from the observation that children and young adults who blush readily do not have acne vulgaris made a study on the use of vasodilator drugs in the treatment of this important skin disease.

Nicotinic acid was used in the treatment of acne with excellent results in two series of patients.

Seventeen soldiers between the ages of 19 and 30 were treated with nicotinic acid. Fourteen had moderately severe and three had minimal acne. Treatment was from one to four weeks with the result that 5 showed marked improvement, 6 showed moderate improvement, and 3 showed slight improvement. The three men who were on therapy for one week only showed no improvement, and in fact noted an increase in the degree of seborrhea.

Diagnosis of Oesophageal Carcinoma

KLAYMAN (*Ann. Int. Med.*, **43** : 41, 1955) writes :

Forty patients in whom oesophageal pathologic lesions were suspected were examined cytologically by lavage with Ringer's solution *via* a Levin tube. Nineteen of 20 cases with malignancy were correctly diagnosed by exfoliative cytology. There were no false-positive reports. Of the 20 benign lesions, all were correctly reported on the basis of cytologic examinations. The results of radiology and oesophagoscopy with biopsies are compared with those of exfoliative cytology. Brief case summaries of cardiospasm associated with oesophageal carcinoma in two patients (one unsuspected) and of an unanticipated oesophageal carcinoma are reported. The clinical value of exfoliative cytology in the oesophagus is briefly discussed.

Latent Carcinoma of the Prostate

FRANKS (*J. Path. Bact.*, **68** : 603, 1954, Ref. *Abst. World Med. Bull.*, **18** : 4, 1955) writes :

The Registrar-General's returns for England and Wales for 1952 showed that 1·38 per cent of all deaths in males over 50 years of age were due to carcinoma of the prostate. In the United States the reported incidence of prostatic carcinoma in men over the age of 50 has varied from 14 to 46 per cent. In an attempt to assess the true incidence of this disease the author, at the Royal College of Surgeons, London, examined the prostate of 220 males of all ages on whom necropsy had been performed because death was sudden or unexpected. Carcinoma of the prostate was found in 69 cases; all the affected subjects were 50 or more years of age, giving a percentage incidence of latent carcinoma of the prostate in this age group of 37.

The methods of examination used and the criteria of malignancy adopted are fully described. The diameter of the tumours varied from 0·1 to 5·8 cm. The small acinar type was commonest, usually beginning at the periphery of the prostate in a multicentric manner. In only 16 of the 69 cases was the tumour diagnosed macroscopically. Infiltration of the capsule, with local spread, was common; there was infiltration into vessels in 26 cases and into benign adenomata in 22. The author states that there is no evidence to suggest that malignancy of the prostate is related to benign hyperplasia; there is, however, an apparent connexion with oestrogen secretion.

Treatment of Pain in Cancer Patients

FABRIS (*Presse Med.*, **63** : 727, 1955, Ref. *J.A.M.A.*, **158** : 1315, 1955) writes that thirty-two patients with neoplasms causing pain were treated with promethazine and chlorpromazine in addition to the analgesics they habitually received. The addition of the two drugs caused a decrease in the amount of analgesics required Toxic reactions to promethazine and chlorpromazine were minimal. The former drug has a powerful antihistaminic and hypnagogic effect, while the latter produces psychosomatic dissociation with effects comparable to those of lobectomy. The improvement in general well-being was striking in these patients. Tumors that are ulcerated, infected, or threatened (because of irradiation) with localized inflammatory reactions benefit the most from this treatment.

Triethylene Melamine in Advanced Ovarian Cancer

SYKES AND OTHERS (*Surg. Gynec. & Obst.*, **101** : 153, 1955) observe :

Twenty-six patients with far advanced and inoperable recurrent ovarian cancer were treated with triethylene melamine (TEM). Fourteen obtained some degree of symptomatic improvement, and of this group 8 showed objective evidence of tumor regression. The usual duration of improvement ranged from 1 to 3 months. One patient showed an 11 month period of benefit and another has now shown no evidence of recurrent disease for a period of 4 years. The latter case may represent a spontaneous remission. On the basis of these observed responses, an adequate trial of TEM or a related compound is indicated in patients with nonresectable or recurrent ovarian cancer. TEM may precede, follow, or be administered concurrently with x-ray therapy.

Nasopharyngeal Carcinoma

LAWLEY AND MEKIE (*Surg. Gynec. & Obst.*, **101** : 141, 1955) in giving a summary of their observations on thirty patients with nasopharyngeal carcinoma treated with urethane observe :

Of 16 who completed a full course of treatment 12 improved and 4 did not respond.

The improvement caused by urethane was found to be only temporary. The progress of all 30 patients is discussed.

Histologically the tumors appeared more differentiated after urethane than before.

Postmortem findings in 5 cases are recorded.

The possibility of using urethane as a form of palliative treatment is considered when: (*a*) radiotherapy is not available; (*b*) the disease is too advanced for radiotherapy; (*c*) there is an interval before the patient can commence radiotherapy.

Management of Bleeding Oesophageal Varices in Cirrhosis of the Liver

HAMILTON (*Ann. Surg.*, **141**: 637, 1955, Ref. *J.A.M.A.*, **158**: 1319, 1955) writes that the varices associated with cirrhosis of the liver are secondary to the increased pressure caused by intrahepatic portal obstruction. The author summarizes the chief working hypotheses and the different therapeutic plans arising therefrom, particularly the views on hepatic artery ligation and portal systemic shunts. If oesophageal bleeding is at an alarming rate or does not respond promptly to bed rest and transfusion, double balloon tamponade has become the first line of defence against exsanguination. In spite of his earlier enthusiasm and the encouraging reports on its use by others it has proved disappointing to the author, in that bleeding was not controlled in 11 of 20 patients, and 15 of the 20 patients died during the hospitalization in which double balloon tamponade was tried. He suggests that the results might be improved by more heroic blood replacement and earlier resort to ligation of varices. Of the various procedures that have been tried in the treatment of varices including packing the superior and posterior mediastina with gauze to stimulate collateral circulation, stripping the outer surface of the lower oesophagus of its blood supply, plus vagotomy, resection of the part or all of the stomach to prevent regurgitation of acid contents into the oesophagus and erosion of the varices, hepatic arterial ligation, and portal-systemic shunts, the author considers the last the most feasible, but states that arterial ligation has received much attention of late. Reviewing the experience of 14 authors with ligation of the hepatic artery, splenic artery, and sometimes also the left gastric artery, in treating haemorrhage and ascites associated with cirrhosis, he found that among 87 patients 23 died in the hospital and at least 10 more deaths occurred within a year after operation. Bleeding recurred in 60 per cent of the patients. The author therefore questions the safety and efficacy of this procedure. Twenty-nine portacaval shunts and four splenorenal shunts performed on dogs in the laboratory were the background for eight such operations that the author performed on human subjects. If the spleen is large he prefers splenectomy and splenorenal shunt because: (1) the large spleen assures an adequate-size vein and anastomosis; (2) splenectomy will obviate hypersplenism; and (3) the procedure is slightly the safer of the two. On the other hand, if the spleen is relatively small, a portacaval anastomosis is advisable as it assures a stoma at least 1·5 cm. in diameter. If the portal vein and vena cava are widely separated one must decide between an end-to-side shunt with ligation of the proximal stump of the portal vein or a femoral vein graft between the two veins. One of the four patients who were good risks and two of four who were poor risks died. Except for one minor and unverified episode, none of the five who survived bled further. Their general health and liver function, following a temporary decline after operation, returned to a level not significantly better or worse than before the operation.

Labyrinthine Hydrops

HOLMBERG (*Minnesota Med.*, **38**: 415, 1955) writes:

Abundant reports in recent years on the study of Meniere's disease reveal an almost universal conception that this common disorder of vertigo, hearing loss, and tinnitus is probably caused by an autonomic nervous system dysfunction or intrinsic allergy, producing a neurovascular spastic state of the labyrinthine circulation and resulting in endolymphatic distention or hypertension.

Intrinsic emotional stress related to the extremes of physical and mental environment in our strenuous life may be the chief factor in precipitating neurovascular disturbances of the labyrinth. Heredity and physical factors also have great significance. A specific protein allergen may prove to be causative factor.

Hydrops of the endolymphatic system may exist with or without vertigo. The effect on the cochlea with hearing loss alone may be the primary disturbance, and it may precede any disturbance of the vestibular mechanism by a period of months or years.

Conservative medical treatment can relieve and control the acute vertiginous episodes in the majority of cases of Meniere's disease. When therapy is instituted early, a fair prognosis in restoration of hearing loss can be anticipated. Recurrences must be expected, and the patient should be encouraged to live a more regular life with emphasis on the avoidance of stress and tension states. A sympathetic understanding of symptoms by the physician and psychotherapy play an important role in the regulation of emotional stress.

The possibility of an organic central nervous system lesion must always be considered when vertigo is of long standing and persists with progressive loss of hearing or when proper medical treatment fails to bring about remission of symptoms.

Surgical destruction of the membranous labyrinth by several methods of labyrinthotomy provides relief of severe vertigo in unilateral Meniere's disease and appears to be the treatment of choice when proper medical management has failed and hearing function is severely impaired.

Premature Induction of Labour in Haemolytic Disease of the Newborn

KELSALL AND VOS (*Lancet*, **2**: 161, 1955) gives in the following lines the summary of their observations:

In haemolytic disease of the newborn the over-all mortality-rate can be lowered by the premature induction of labour at the optimal time after 35 weeks' gestation, followed where necessary by exchange transfusion.

Of importance is the avoidance of citrated blood for exchange transfusion, a large volume (1 litre) of freshly collected warm heparinised blood being substituted.

The mortality-rate for spontaneously delivered infants (23·4 per cent) is compared with that of infants born after premature induction (10·7 per cent) at a time indicated by consideration of the antenatal antibody titre of the mother's serum. Statistically these figures indicate a significnt preference for controlled induction.

Controlled induction of labour and subsequent treatment have virtually eliminated stillbirths after 35 weeks' gestation and have not been associated with an undue increase in neonatal deaths.

CURRENT TOPIC

THE WORLD MEDICAL ASSOCIATION: REVIEW OF YEAR'S PROGRESS

Dr. Louis H. Bauer, Secretary General of The World Medical Association summarized the 1955 activities of the Association by pointing out the following highlights of the year:

Closer Ties

1. Three national associations were added to membership in The World Medical Association in 1955 making the total membership 52 national associations. (In 1947 there were 32 founder associations).

2. In June the First National Secretaries Conference was held at the Secretariat. The suggestion and recommendations of this group have proved helpful to the Secretariat and have provided the Council with a number of important items for consideration in planning future activities.

3. Ten member associations and one prospective medical association visited by the Secretary General.

4. Numerous lectures arranged for doctors visiting foreign countries, and an additional number of doctors assisted during their visits to the United States. Without exception all these contacts have been useful, enthusiastically received and have served as additional proof of the need of The World Medical Association.

Professional Honor and Interest

5. The 9th General Assembly amended the International Code of Medical Ethics to include the duty of the doctor to society.

6. The Twelve Principles on Social Security† were reaffirmed by the Assembly and copies of these Principles transmitted to associations needing assistance in protecting the right of the patient to adequate medical care.

7. National associations have been advised to begin at once to organize the medical resources in their countries in cooperation with the government and military officials in order that adequate medical service be available in the event of war.

8. Meetings have finally been arranged with representatives of the International Social Security Association for the purpose of clarifying the meaning in their Fifteen Conclusions on Relations Between Social Security Institutions and the Medical Profession.

Professional Problems

9. Second World Conference on Medical Education set for 1959—topic for consideration to be "Post Graduate Medical Education".

10. Resolution on complete autonomy of medical professional organization of nation.

11. Comprehensive reports of the various systems of medical social security developing in numerous countries published in the *World Medical Journal* and as supplements to the official minutes of Council and General Assembly meetings.

12. Plans under consideration by the Council of ways and means of implementing a programme of aid to the member associations.

Studies being carried on include:
Professional Income Tax Deduction
Relation of National Medical Association to Representation on WHO Assembly Delegation
Relationship Between Medical Profession and General Press
Retirement Pensions for Doctors
Educational Exchange Opportunities
Validity of Medical Records for Central Repository.

Exchange Information

13. *Proceedings* of First World Conference on Medical Education well received and studied by national groups.

14. Joint Committee with International Union of Medical Press named to cooperate in editing second edition of *World Medical Periodicals*.

15. *World Medical Journal* increases its correspondents to 22 from 16 member countries; increases its publication of news and developments in an increasing number of countries; and develops new sections.

Liaison with International Groups

16. Development of joint study group with International Committee of The Red Cross, International Committee on Military Medicine and Pharmacy and WHO to consider the problems of: International Medical Law; and Emblem to protect civilian doctors.

17. Strengthened relationship with: International Dental Federation, International Federation of Medical Students Association, and International Council of Nurses.

18. Progress in organizing International Committee on Occupational Health Services for coordination of programme of such other international groups as International Commission on Industrial Health and WHO.

Programme for 1956

The Secretary General pointed out that plans were already under way to increase and strengthen the 1955 activities of The World Medical Association and to investigate and implement the programme in 1956 in an increased effort to bring about further fulfilment of the

† Published in January 1, 1956 issue, p. 31.

Seven Objectives of The World Medical Association. These objectives are :

I. To promote closer ties among tht national medical organizations and among the doctors of the world by personal contact and all other means available.

II. To maintain the honour and protect the interests of the medical profession.

III. To study and report on the professional problems which confront the medical profession in the different countries.

IV. To organize an exchange of information on matters of interest to the medical profession.

V. To establish relations with and to present the views of the medical profession to the World Health Organization, UNESCO and other appropriate bodies.

VI. To assist all people of the world to attain the highest possible level of health.

VII. To promote world peace.

NOTES AND NEWS

Col. Amirchand Prizes

Col. Amirchand prizes for the best published papers in different fields of medical science have been announced.

Among the recipients of the prize of Rs. 300 each were : Dr. B. K. Anand, of Lady Hardinge Medical College, New Delhi, Dr. T. R. Bhaskaran, All-India Institute of Hygiene, Calcutta, Dr. P. P. Lele, University of Oxford, London, Dr. A. S. Panthal, Vallabhbhai Patel Chest Institute, New Delhi, and Dr. V. Ramalingaswamy, Nutrition Research Laboratories.

Health Education Plan Needed for Rural Areas

The Union Health Minister, Rajkumari Amrit Kaur, emphasized the need for an effective health education programme in rural areas while speaking at the inauguration of the new Maternity and Child Health Project and a students' hostel at Singur, near Calcutta on 31 December 1955. The project is being run under the joint auspices of the Union and State Governments and UNICEF and WHO.

Much of ill health in rural areas, she said, was due to ignorance of health rules. Knowledge of these had to be imparted to the villagers, making them health conscious. Progressive countries had achieved striking results through effective health education programmes.

She said the expansion of the Singur Health Centre would not only provide improved curative, preventive and social welfare services on the people of the area, but would also help raise to a higher level practical field facilities for the training of students in public health. In the expansion programme, high priority had rightly been given to improved maternity and child health services. In order to build up a strong and healthy nation this was most essential. The data available showed that the Singur Health Centre had so far not been able to extend proper confinement facilities to more than 25 per cent of expectant mothers in the area.

Nevertheless, the Minister added, much reduction in maternity and child mortality rates had already been achieved at Singur. She expressed the hope that the increase in the staff and other facilities at the centre would help further reduce the mortality rates.

The number of trained dais (midwives) actually working in Singur was still very inadequate. It was necessary to have in every village in the thana at least one trained dai and to arrange for proper supervision and guidance of her work. This could only be done by intensified training and service programmes.

Continuing, the Minister said another important aim of the centre was to serve as a practice field for the training of public health students of different categories who came from all over India. The inadequacy of trained personnel for carrying out health projects had always been and still was a great drawback. The All-India Institute of Hygiene and Public Health, which was the only institute of its kind in India, had assumed the responsibility for this training and the Singur Health Centre, as the rural practice field of the Institute, could play a very useful part in this training programme.

Addressing the gathering, Lieut-Gen. D. N. Chakravarti, Secretary, Medical and Public Health Department and Director of Health Services, Government of West Bengal, said : "The financial plan envisaged in the scheme contemplates an expenditure of about Rs. 5 to Rs. 6 per capita per year, which is nearly four times the amount spent in 1944 and over eight times the amount spent in 1939. It is also about double the amount we are able to spend in other areas of this State.

We have now 48 thanas and 176 union health centres, with beds ranging from 4 to 50 out of a total of 243 thanas and 2,079 unions in the State. During the next five years, we hope to establish 330 additional health centres.

Besides the above, the State Government has taken up a scheme of improving the training facilities of lady health visitors, the number of this type of health personnel being very few at present. It has also been decided to shift the training institution from Calcutta to Singur where a building is now being constructed at a cost of Rs. 6·78 lakhs.

We have enough medical manpower to open more health centres during the next five years; it is only lack of adequate financial aid that prevents us from being too ambitious. Although we are still far from our cherished goal, the fact that we are determined to reach it gives me the hope that our progress in this sphere would be much faster than has been. Let us also hope that the encouragement given to us by Rajkumariji's visit among us today will revitalize us further to reach the goal earlier.

200-Bed Radium Institute and Cancer Hospital at Hyderabad

Prime Minister Nehru inaugurated a 200-bed radium institute and cancer hospital built and equipped by the Indian Conference of Social Work, at Hyderabad.

In his speech he said that though he did not know much about cancer disease, he knew that it was a bad disease and patients suffering from it needed careful treatment. He emphasised the importance of taking

preventive measures against all types of diseases. He listed providing of good and sufficient food and clean living place to the people as some of the preventives.

The Raptakos Medical Research Board Fellowships

The Raptakos Medical Research Board Fellowships for the year 1956 have been awarded to the following candidates for research work in subjects mentioned against their respective names: 1. Dr. P. P. Nair, Department of Biochemistry, Institute of Science, Bombay—Studies in Nutritional Significance of Vitamin B. 2. B. R. Divakaran, Physiology Department, Presidency College, Calcutta—Studies on the Utilisation of Fructose and Galactose in Diabetes. 3. S. H. Kamath, Institute of Science, Bombay—Studies in Proteins of Vegetables. 4. Jitendra Sahay, Prince of Wales Medical College, Patna—Portal Hypertension—An Experimental Study. 5. P. N. Chatterjee, Christian Medical College Hospital, Vellore, South India—Prevention and Treatment of Shock and Postoperative Hazards and Role Played by Plasma Expanders.

Offers of Employment from Ceylon

The Government of Ceylon require two Ear, Nose, Throat Surgeons. The details of qualifications required, duration of employment and estimated salary and other conditions likely to be offered by the Government of Ceylon may be had from the Central Office, I.M.A., Delhi.

In case of candidates in Government Services, a formal approach to the Government of India will be necessary for their release. Such formal request will be made by the Regional Office S. E. Asia, World Health Organisation at the appropriate stage.

Cancer Research by Indian Lady Doctor in U.S.A.

Dr. Hemprova Ghosh, M.B. (CAL.), a member of the Indian Medical Association, recently passed the examination of the American Board of Pathology held in Chicago in October 1955 after four years' training in pathology. She is a member of the American College of Pathology.

Dr. Ghosh went to America when she was offered a research fellowship by the Washington University Medical School, St. Louis, Mo. to work with Dr. E. V. Cowdry, the eminent cytologist in the field of cancer research. After she worked with him for a year and a half in experimental cancer research, she became interested in human tumour pathology. She spent 2 years with Dr. Lawren V. Ackerman, an authority in tumour pathology and tumour diagnosis. Still with Dr. Ackerman in the department of Surgical Pathology, Washington University Medical School and Barnes group of Hospitals, St. Louis, she is carrying on her experimental studies of the therapeutic aspect of cancer research. She is working with inbred strains of mice, having spontaneous or transplanted mammary carcinoma and leukemia.

Dr. Ghosh is the widow of Captain Nirendra Nath Ghosh, also a research worker, who at the time of his death had a Central Government assignment at Simla to write the clinical history of the Indian army in World War II.

International Symposium on Venereal Diseases

The First International Symposium on Venereal Diseases and the Treponematoses will be held at the Statler Hotel, Washington, D.C., from May 28 through June 1, 1956. The symposium will be sponsored by the Public Health Service, U. S. Department of Health, Education, and Welfare, and the World Health Organization. This symposium will afford an excellent opportunity for authorities in the field from all over the world to exchange ideas and information on the latest developments in research, diagnosis, treatment, and case finding of the venereal and treponemal diseases.

Dr. Clarence A. Smith, Chief of the Public Health Service's Venereal Disease Programme, is in charge of arrangements for the symposium which is expected to draw over 500 specialists in the field of venereal disease and the treponematoses from many countries of the world.

The agenda for the symposium will cover such topics as: Control of Venereal Diseases and the Treponematoses in Retrospect and Prospect; Reporting and Statistical Problems; Natural History of Syphilis and the Treponematoses; Experimental Syphilis and the Treponematoses; Serology and Immunology of the Treponematoses; Diagnosis, Management and Prognosis of the Treponematoses and the Venereal Diseases; Gonorrhoea, the Minor Venereal Diseases and Nongonococcic Urethritis; Epidemiology and Control Techniques; Health Education and Public Information; Voluntary Agency Cooperation in Control Programmes.

The symposium is open to all physicians, scientists and professional health workers interested in participating. Anyone interested in submitting a paper for consideration by the Programme Committee should send an abstract of his paper to Dr. C. A. Smith, Medical Director, Chief, Venereal Disease Programme, Division of Special Health Services, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D.C., as soon as possible. Accepted papers may be presented in person or by an alternate. All abstracts to be considered for the programme must be received no later than February 1, 1956.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

'Congenital Syphilis'

SIR,—On going through the article 'Congenital Syphilis' (*J. Indian M. A.*, **25**: 439, 1955), intended as a refresher course for the general practitioners, we are constrained to offer the following comments both on the manner and matter of presentation of the subject:

The term 'innate' which the author uses as a substitute or additional term to qualify syphilis is a novel, perplexing and unnecessary addition to syphilology, although according to the definition in the dictionary 'innate' means present from birth.

The author writes under pathogenesis about spirochaetal nests lying dormant in the organs of the infected infants etc. But autopsy studies of syphilitic foetuses and infants have revealed a diffuse dissemination of the organisms in most of the organs without much reactive inflammation; and to the writers' knowledge no pathologist of repute has described spirochaetal nests in the organs of the congenital syphilitic infants or foetuses. Further in the live born syphilitic infants dying after some interval of time, the paucity of spirochaetes in the internal organs has been a noteworthy autopsy feature.

In the discussion on 'clinical features' the description of bone lesions under 'Pseudo-paralysis of Parrot' is not happy. The heading should have been bone or skeletal lesions of early congenital syphilis as the so-called pseudo-paralysis (inability or disinclination to move the affected limb), occurs only in a third of the patients with bone lesions.

The principal lesions of bone in congenital syphilis are osteochondritis, periostitis and osteomyelitis. Osteochondritis affects the metaphysis and not the epiphysis as described by the author. The statement that 'secondary pyogenic organisms may invade the bone' does not find support in recorded literature.

Under Neurosyphilis, the statement made that the central nervous system is frequently involved in early congenital syphilis and that changes in the spinal fluid with or without evidence of meningitis are seen in more than 75 per cent of cases, is difficult of credence in view of the findings of several authors such as Stokes, Jeans, White and Veeder, who have recorded only 20, 32 and 30 per cent of spinal fluid abnormalities among congenital syphilitics, both early and late.

In our limited studies of the spinal fluid examination of infants and children under 2 years of age with clinical evidence of somatic syphilis, abnormalities of the spinal fluid have been rare except an occasional rise in proteins which may be a chance laboratory error.

Under 'management', the author is probably quoting the old time concept that a syphilitic woman should receive treatment during every one of her pregnancies, irrespective of the fact whether she had received treatment before and whether she is serologically negative or positive. This statement was being quoted from book to book without any statistical data to support it and might have had some validity in the pre-penicillin days. Goodwin in 1950, as the result of her follow-up studies of 587 women treated for syphilis and followed in 890 pregnancies during which treatment was withheld, reported only 0·2 per cent failure. Since the advent of penicillin it has been fairly established that treatment is not necessary to a syphilitic woman during every one of her pregnancies provided the mother had received adequate treatment with penicillin previously, shows no clinical signs of active infection and is serologically negative and if reinfection does not occur.

Lastly, the author has the temerity to recommend as the treatment of choice, a combination of penicillin and acetarsol and as an additional or substitute therapy, other drugs such as sulpharsenobenzene, bismuth, mercury, etc. It may be stated at once that acetarsol, a pentavalent arsenical with very feeble spirillicidal activity and frequently toxic, was a thrice discredited remedy for congenital syphilis even before the advent of penicillin. Organised studies in different parts of the world including our own have established that penicillin and penicillin alone is therapeutically effective in the prevention and cure of congenital syphilis nearly 100 per cent and 95 per cent respectively with the added advantages of the shortness of therapy, ease of administration, and freedom from toxicity.

The author has not given any lead as to the type and duration of treatment recommended for the prevention and cure of congenital syphilis.

It is well known that many of the infants with congenital syphilis are fairly debilitated, dehydrated and anaemic often suffering from intercurrent infections when first seen. They require hospitalisation and adequate pediatric care directed towards restoration of normal fluid, salt and protein balance and correction of anaemia. This aspect of pediatric care should have been stressed. We are etc.,

Government General Hospital, Madras.

R. V. RAJAM, M.S., F.R.C.P.
AND
P. N. RANGIAH, M.D.

REVIEWS

Yakshma—Rog O Rogi—(Tuberculosis—the Disease and the Diseased)—in Bengali.—By Dr. Subal Churn Law. Published by the author from 78, Dharamtala Street, Calcutta-13. First Edition. Pages 128 with illustrations. Price Rs. 2/- only.

Dr. Law's book is an interesting survey of the problems of the tuberculous and his or her family and suggests the ways and means to solve those problems. The book deals in detail with what and how much the patient should know about the disease, what the nurse should know and learn. The present publication is free from any technicalities, and as such can certainly be recommended as a guide to the patient, the nurse and the family.

Everyman's Guide to Phthisis—By Dr. Krishna Kumar, D.T.D. Published by the Author, Ambala City. Pages 121. Price Rs. 3/-.

This is a small handbook of 121 pages dealing with the subject of phthisis mainly for the layman and specially for the intelligent and literate tuberculosis patient. The subject has been efficiently handled and information and explanations necessary for an intelligent patient to make him understand the instructions of the doctor during his treatment have been given. He can also gather sufficient guidance from this book to conduct his post-treatment life to avoid chances of relapse. The language is clear and printing is good. The book will be useful to tuberculosis patients. A few illustrations would have made it easier for the layman to understand the subject better.

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XXI ANDHRA STATE MEDICAL CONFERENCE, NELLORE

The 21st Andhra Medical Conference was held on the 23rd and 24th April 1955. Major K. N. Rao inaugurated the Conference. Dr. D. Raghava Rao was the Chairman of the Reception Committee and Major K. Vullakki presided over the Conference.

In inaugurating the Conference Major K. N. Rao, Director of Health Services, Andhra, discussed the health problems of India and particularly of the Andhra State. He referred to the Second Five Year Plan in which a comprehensive expansion of the Health Service both curative and preventive from the periphery to the centre throughout the State is being planned.

Dr. Raghava Rao cordially welcomed the guests and delegates. Major Vullakki, the president, in course of his presidential address said,

"Let us take into consideration the affairs of the Indian Medical Association in Andhra Desa. There are over 3,000 registered medical practitioners of modern medicine in our state but it is unfortunate that still a large number of practitioners have yet to become active members of our Association. I appeal to all those doctors that have not yet joined our association, to lose no time and join hands with us in the interests of the medical community and ultimately themselves. I feel organisation is strength, and I wish that medical men should not lag behind members of other professions, in organising themselves.

Since the Indian Medical Association is the single largest representative body of the medical profession I appeal to the Government to consult this body in all matters pertaining to public health and medical relief. On our part we offer our fullest co-operation to the authorities in serving humanity in our own humble way. *Health, Disease and People.*

Now I wish to deal with the topic with which we are most interested. It is said 'health is wealth'. What is health? "Health is a state of complete physical, mental and social well-being of an individual" and not merely absence of disease. One authority states that "Health is a positive state of well-being in which the harmonious development of physical and mental capacities of the individual lead to the enjoyment of a rich and full life". To achieve, to preserve and to protect such a state of health to the individual and to the society is our goal and ambition. Health is vital to the progress of every nation. No nation can progress agriculturally, industrially and economically so long as its population is in poor health. Year after year, our nation is having a great loss of effective man power and also man-hours in our industries due to neglected public health. Hence I appeal to our Government to consider health as the pivot of the human progress and to give it as much importance as it usually gives to other departments. There are various ways and aspects of maintaining a high standard of public health, of these--(*a*) balanced diet, (*b*) proper housing, (*c*) provision of drinking water, (*d*) proper drainage, and (*e*) personal hygiene are the most important factors lack of which lead to disease. Besides these, there are also others which contribute to the ill health.

Now let us take up some of these day-to-day problems that are facing us in our state: (*a*) PROHIBITION: The first and foremost of these is the effect and result of prohibition. Prohibition is indeed good in principle. By strict enforcement of the Act, many families could be saved from the calamities of this much dreaded habit of consuming alcoholic drinks like arrack. But as things stand today, unfortunately illicit distillation has become a new cottage industry. The crude arrack and the various poisonous intoxicants made with certain caustics in these illicit stills are telling on the health of the illiterate and ignorant village-folk heavily. I, therefore appeal to the Government to enforce the act effectively if it can, or repeal it, if it cannot. Otherwise, the health of the people is going to be endangered heavily.

(*b*) *Cinemas*: Cinemas play a positive role in educating the masses. They can do a lot to promote better health among the people by teaching better ways of life and customs and habits. But unfortunately, now and then, we are coming across pictures whose sole purpose seems to be to cater to the basic passions of man by laying undue stress on 'Sex appeal'. These pictures are having very adverse effects on the minds of the Youth in their impressionable age thereby affecting their physical and mental well-being. It is the duty of the producers and the controllers to see to it that highest standards of human values are maintained in our pictures.

MAJOR K. VULLAKKI, THE PRESIDENT OF THE CONFERENCE.

(*c*) *Environmental Sanitation*: There is some sort of public health organisation in urban areas. So far as villages are concerned, it is hopelessly inadequate and blank in many places. If proper standards of sanitation

and public health are to be present, the co-operation of the common man is vital as without it no sanitary staff can ever hope to turn our good results. For this, health consciousness is essential for the average man in the street. To develop this it is the duty of the state and the medical men to carry on a mass propaganda on modern methods through cinemas, broadcasting, leaflets, conducting health weeks, encouraging physical exercises and games, and enlightening the masses about the dangers of insanitary life.

(*d*) *Restaurants*: In our state, the majority of hotels are in a deplorable condition. They happen to be a rich source of infection of communicable diseases. The health staff should be more alert and strict in checking the hotels and keeping them in good condition. I suggest that all the hotel staff should be periodically examined and certified free from communicable diseases.

(*e*) *School Hygiene*: Of late many a school authority is neglecting the need for a periodical check-up of their students. Medical check-up is very essential for school-going children as many diseases in their latent form can thereby be detected in time and cured before it is too late. Physical development among our school children is deplorably low and their stamina is less. Proper stress must be laid by the authorities on physical and health education and better habits.

Malaria, Filariasis, Tuberculosis and Leprosy.

The main diseases which are telling on the health of the masses in our state are Malaria, Filariasis, Tuberculosis and Leprosy. Malaria is rampant in every nook and corner of our state. Our country is losing a million souls a year by this controllable malady and at least 10 times that number are victims to this disease. In this connection, I beg to state that Malaria is one of the diseases that can totally be eradicated by effective public health measures. Knowledge of modern medicine has proved this fact beyond doubt. What is wanted is effective control of drainage and mosquito breeding. The latter can be done by periodically spraying of all stagnant-pools with D.D.T. The source of infection for Malaria is also the source for Filariasis. The same methods of control of Malaria are effective for controlling Filaria. Filariasis is invading our state, district by district. Even the areas which are formerly said to be free from this disease are now declared by the public health authorities to be highly endemic. Now the disease is latent and in course of time the incidence of Filariasis will be very heavy, if not checked in time. In Guntur District there were very few cases of Filariasis before and now we are experiencing a progressive rise of incidence of this disease.

Tuberculosis.

It is still a major public health problem next in importance only to Malaria. With the development of urban civilisation the incidence of this disease is increasing, of course poverty and its associated insanitary and intemperate ways of life are also contributing factors. Every year two and a half million people are suffering from this disease in our country and of these death is snatching away about 5 lakhs of people. It is estimated that our nation is losing about 900 to 1000 millions mendays a year. We have got very few sanatoria in our state. We require one sanatoria for each district and one tuberculosis clinic to be attached to each Taluk Hospital. I congratulate the public of Nellore for having generously contributed for building a sanatoria by private effort. I am glad to note that the Government have launched a B.C.G. campaign at Visakhapatnam and it is hoped that it will be extended to the rest of the districts at an early date. Let not the public have any misgivings about the efficacy of B.C.G. or the exaggerated impressions of the so-called dangers of B.C.G. vaccine. B.C.G. vaccine is highly attenuated well tried in western countries without any dangers, and is safe for our country also. Of course the basic problems of poverty must be eradicated before tuberculosis can be effectively controlled. In the minds of the public there is an apprehension that 'Once a Tuberculosis patient, he is a ready victim of death'. This is not true. Modern medicine has advanced and many a tuberculosis patient can live a useful life too if treated early.

Leprosy.

At least there are two millions of patients in our country. Mission institutions are doing very useful and noble work in this direction. More leprosaria are needed and lepers should not be allowed to beg at each and every place and transmit disease. It is said that children are particularly liable to contract it by contact. Lepers should be otherwise settled in separate colonies by the state.

Rural Medical Relief.

The bulk of the population in India lives in villages and the rural Medical relief is a headache to any Government. Medical relief is most inadequate to the village folk. The Government is having three fold programme to offer medical relief. There are subsidised rural medical dispensaries, Local fund dispensaries and the Primary centres. Rural Medical practitioners are ill paid; drugs supplied to them are hopelessly inadequate, and unfortunately the medical aid given by this class of doctors is a mere eye-wash to the poor villagers. The same fate is hanging on the L. F. dispensaries also. Regarding the primary centres, the conditions are a little better. They are run by the Government; and their finances are a little better. Here we get an integrated medical and public health service for the villagers.

There is a provision for a few beds and for maternity and child welfare activities. The health staff attached to these Units are expected to look to the health aspects of the village e.g., water supply, vaccination and inoculations. I am personally of the view that the first two types of rural relief be replaced by primary centres. As they stand today, these are merely a one-man show. No medical unit can work efficiently, unless there are at least three or four doctors in each unit to assist each other and serve the public. It is the villagers that need medical relief and not the present day uneconomical village units. Hence the Government can have efficient and well organised primary centres here and there with good communications to each village. No Government can ever have a hospital in each village. Depending on their finances they can only have a well run hospital for a specific number of people. Therefore I appeal to the Government to take a specific number of people, as a unit for its planning and not merely a group of villages. Instead of dispersion of finances to existing rural dispensaries etc. proper utilisation of funds at primary centres is more essential and serves its purpose better. I also wish to see the day when all the Taluk Hospitals are upgraded with at least four doctors, one surgeon, one physician, and one obstetrician and a Pathologist-cum-radiologist in each unit.

Health Insurance.

There is a scheme of health insurance for industrial workers in certain urban centres like Kanpur, Delhi, Coimbatore, Bombay and Calcutta. Since unfortunately the number of industries and industrial labourers is limited in our state, I propose the Government can as well establish voluntary urban Health Insurance scheme for the benefit of the towns-men who are engaged in various institutions, private and public. It is my earnest desire that we, medical practitioners, should extend our full co-operation to the Government in making the scheme, when launched, a success.

Medical Education.

In recent years, there has been a heavy rush of applicants for admission to medical colleges. Various systems and methods of filtering were followed. I per-

sonally view that admission should be by pure merit. The personal interview marks must be reduced to the minimum and more emphasis must be laid on University marks.

It is a well known fact that there is a great dearth for teachers in our medical colleges. This is more particularly felt by us since the separation of the Andhra state. It is wrong in principle to appoint people without adequate teaching and research experience as professors. Mere seniority alone should not be the basis of selection. There should be a good academic background for every teacher. In this connection I do not understand why a separate teaching cadre should not be created by the centre on an all India basis. It is even worth-while to get the services of a few internationally known professors from abroad to man some of our teaching departments on a contract basis for some time. That will raise our standards and stimulate original research in our country. I understand that there are many thousands of highly qualified but unemployed medical personnel in West Germany, and we can make use of them. Teachers should be adequately paid so that they are above want. They should be strictly prohibited from private or consultant practice. Then only our teachers can be expected to give heart and soul to teaching and research work. Extra amounts spent on this account will give good dividend in the long run. Facilities for post graduate education are very meagre in our Andhra state. I appeal to the University authorities to relax their restrictions for the general practitioners so as to enable them to appear for the post graduate degrees as private candidates. What is wanted is efficient and advanced training in all branches of medicine. It is highly desirable to depute some of our youth abroad for higher education and absorb them into service after return.

Medical Colleges.

We have at present two colleges, one at Visakhapatnam and the other at Guntur. They take about 132 students a year. According to Bhore Committee report we should have one doctor for every 2000 population, and actually we have only one doctor for about 10000 population. In our state alone there are about 22 million population. We have only about 3000 doctors; this is very unsatisfactory. This plainly indicates that we should have more colleges to train more doctors. The Guntur Medical College which was started in 1946 could not still become a full blown college. I fervently hope that at least from July this year the Guntur Medical College will function fully. There are already proposals for starting new Medical Colleges, one at Tirupathi and the other at Kurnool. I pray that they will come into shape before long.

Our Immediate Requirements.

After Andhra State was separated, we have none of the following essential facilities :—

(1) Central Laboratory like the King Institute at Guindy.
(2) A modern X-Ray department like the Barnard Institute of Radiology at Madras.
(3) Nurses Training college like the Lady Hope Nurses College, Madras.
(4) We have no Thoracic surgery unit, nor Neuro-Surgery Unit as in Madras, and
(5) We have no Ophthalmic or Maternity Hospitals as in Madras.

I strongly urge on the Government to lose no time in starting these. It is rather deplorable that none of the departments in our two colleges have been upgraded like the Women and Children Hospital, Egmore, Anatomy Department at Stanley College, Madras, and Venereal Department in the General Hospital, Madras. However, we have an excellent Pathology department at Visakhapatnam. We should spare no pains to get recognition of this department into an upgraded institution at an early date.

District Laboratories.

At present we have no district Laboratories to which a private practitioner or any one else for that matter can send specimens for examination and report. We have to send them either to Madras or to Visakhapatnam by which time the specimens may become deteriorated and to get a correct report may not be possible. Doubtlessly District Laboratories in each district with a qualified pathologist will be boon for the correct scientific study of the cases. We urge the Government to open such laboratories at an early date.

Indigenous Systems of Medicine.

The practitioners that come out of these institutions are also given the training in some of the District Headquarters Hospitals in modern medicines. They are also employed in Local fund dispensaries on a par with practitioners of Modern Medicine. In these institutions as well as in their own practice they deal with modern medicines mainly, instead of using their indigenous medicines. When that is the case, I do not see any reason why these separate institutions be maintained. These can well be converted into colleges of Modern medicine so that we can have more persons trained in modern medicine. This does not mean that there should be no indigenous system of medicine at all, but this should be taught as post graduate subject and research. Medicine should be of only one type and that should be modern medicine into which is taken all that is good in other systems. Medicine, like any other branch of science is universal and is based on the apprecintion of truth wherever found. Let it be Hindu, Muslim, Indian or Chinese medicine. Wherever there is truth, it can be incorporated into modern medicine. And dogmatic approach is negation of civilisation.

Five-year Plans.

It is highly commendable that these plans are envisaged by our Prime Minister, Hon. Sri Nehru. In the first 5-Year plan many schemes have been completed. We are now in the last year of the first 5-year plan. We all should be plan-minded and give every co-operation by way of money, material and personal assistance to make it a success.

The Second 5-Year Plan—The second five-year plan is a people's plan. In a recent speech on the floor of the Indian Parliament, our Union Health Minister, Honorable Srimathi Rajkumari Amrit Kaur stated that she laid greatest emphasis on medical relief to rural population, because they had been sadly neglected. Continuing she said that the fault of not carrying out the plan fully even though funds were allocated was with the states but not with the Centre. Therefore I request our present popular Andhra Government to implement the plans entirely. I understand the following have been done under the first 5-year plan.

Improvements to Andhra Medical College and King George Hospital, Visakhapatnam, Guntur Medical College and General Hospital of Guntur, Headquarters Hospital of Eluru, upgrading of Headquarters Hospital at Kurnool, opening of certain primary centres, maternity and child welfare centres and lastly establishment of Family planning centres at Visakhapatnam, Kakinada, Guntur and Kurnool. For second 5-year plan, I would suggest the construction of T. B. sanatoria, Leprosaria, primary centres including family planning wings, provincialisation of all petty hospitals, provision of District Laboratories, X-ray units to each Taluk hospital, improvements to medical colleges and attached hospitals, a separate women and children Hospital, Ophthalmic Hospital and Infectious diseases Hospitals. About public health, I suggest the provision of adequate good drinking water, drainage, latrines, and road communications to villages.

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The following resolutions were passed at the Conference :—

1. This conference reiterates that Hony. Medical Officers and Assistant Medical Officers should be given the same facilities for specialisation training in foreign countries as is given to paid medical officers.

2. This conference urges on the Government to improve the service conditions of the Railway Asst. Surgeons and place them on a par with those of the medical officers of the Central Government. It also urges the State Governments to improve service conditions of Local Bodies by placing them on par with those of the Medical Officers in Government Service so as to attract the young medical graduates to work in rural areas.

3. This Conference requests the President to constitute a committee to study in detail the problems of post-graduate and under-graduate Medical Education and training, and report its recommendations within six months. The recommendations of the committee will be circulated among the branches and placed before the State Branch for its approval and necessary action at its next annual conference.

4. This Conference requests the State Government to open two more Medical College in Andhra Desa.

5. This conference resolves to request the Government to institute indigenous system of medicine as a post-graduate chair of study attached to the scientific system of modern medicine.

6. This conference resolves to request the Government to constitute special cadre for subjects like Pathology, Bacteriology and Radiology with a special allowance so that the trained personnel may be encouraged to stick to their speciality.

7. This conference request the Government to open special short term training courses in Anaesthesia, Radiology, general laboratory work which includes pathology, bacteriology and biochemistry, so that their services may be available to the district hospitals and private nursing homes.

8. In view of some of the medical officers in service representing their cases about the injustice done to their seniority the president is requested to form a special committee which will go through the cases and offer its recommendations to the Government for justice.

9. This conference resolves to request the State Government to give preference to medical officers discharged from service after working for a period of about five years when they call for new applications for Asst. Surgeon posts in this State.

10. Resolved to request the Government of India to provide an All-India Medical Register in alphabetical order irrespective of qualifications, and due representation of the licentiate members of the profession be given in the proposed council on their numerical strength.

11. Resolved to request the Government to consult this Andhra State Branch of the Indian Medical Association in regard to constituting the Andhra State Medical Council.

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VI TRAVANCORE COCHIN MEDICAL CONFERENCE, TRIVANDRUM

The sixth annual conference of the Travancore Cochin Medical Association was held at Trivandrum on 15-16 October, 1955. Over 300 delegates attended the conference. The members of the Working Committee of the IMA who were in Trivandrum for the 55th meeting of the Committee were among the distinguished guests who attended the inaugural sessions of the conference.

His Highness the Rajpramukh of the Travancore Cochin State inaugurated the conference. Dr. C. A. Achuthen Pillai was the Chairman of the Reception Committee. Dr. C. O. Karunakaran presided over the conference and Sri A. A. Rahim, Minister of health, T. C. State, inaugurated the scientific session.

His Highness the Rajpramukh in inaugurating the conference said "that in the country various systems of treatment like Ayurveda, Chintamani and Unani have been in existence for long and from comparatively recent times homeopathy has also gained great popularity. He appealed to the Allopathic doctors to explore the possibility of evolving a new system of treatment which would combine the benefits of different systems of treatment that exists in the country." He told the doctors that theirs was a noble profession which required infinite patience and a great deal of human sympathy on their part often involving sacrifice of personal comforts and that their real compensation is the satisfaction that they derive in having helped their utmost in relieving or minimising the suffering of a fellow being.

DR. C. A. ACHUTHEN PILLAI, THE CHAIRMAN OF THE RECEPTION COMMITTEE.

Dr. C. A. Achuthen Pillai extended a cordial welcome to the guests and delegates. He eulogised the large hearted activities of His Highness the Rajpramukh in the State. It was due to the benevolent policy followed by His Highness's Government, there was so much improvement in the State. He also described the activities of the branch for the last six years. He said, "Starting with about 344 members six years ago, we have today over 600 members on the roll". He referred to the many problems facing the medical profession today. "I do not attempt to deal with them because I am afraid, I may be anticipating Dr. Karunakaran, who, I am sure, can do much better justice to the subject. But I may be guilty of dereliction of duty if I conclude without making a passing reference to a problem of special significance to the State, the demand for substandard instruction in modern medicine in institutions teaching other systems of medicine. We are certainly proud that our State was the first to start a school of Ayurveda and successive Governments have given great encouragement to this ancient heritage of ours. This was necessary if medical assistance was to reach the masses and that policy may have to be continued for many years more. But we are afraid that mixing up other systems with modern medicine and converting the practitioners of those systems into half-baked practitioners of modern medicine will be ruinous to the other systems. Let the courses of study be full and complete for those who want to practise different systems of medicine. Unless such standards are maintained the abiding interest of the people will be grievously affected."

Sri A. A. Rahim, Minister of Health inaugurated the scientific session. In his address he made it clear that the graduates in Ayurveda are not intended to practise Modern Medicine but only Ayurveda. He cautioned it would be disastrous to the whole system of medicine if they were to venture into other fields leaving their own. Sri Rahim disclosed that they have programmed to start Post Graduate courses in the Trivandrum Medical College. He said that it would be the endeavour of the Government to maintain the college at a very high level of efficiency so that students who are coming out of the college might be able to render maximum and efficient service to people.

SRI A. A. RAHIM INAUGURATED THE SCIENTIFIC SESSION.

Sri Rahim also said that they had a comparative scheme under the second five year plan for installation of protected water supply, extension of maternity and childwelfare centres upgrading of all District Hospitals with special departments opening of Primary and Secondary Health Centres, family planning units, District Health Laboratories etc. Additional Malaria and Filariasis control units were proposed to be started soon. He also announced that the B.C.G. campaign would be intensified and more tuberculosis clinics would be opened to fight against the malady of tuberculosis.

Dr. C. O. Karunakaran in his presidential address said,

"It will be impossible for me to deal with all our problems in a short speech. I shall refer briefly to some of the more important of these, and indicate how they affect our objectives; both individually and collectively.

Two fold objective of the Association.

We have a two fold objective before us. The first is to serve the people and the second is to be given a position in society worthy of the noblest of all the professions. Service of the people includes not only the cure and relief of the suffering but the promotion of the optimum physical and mental efficiency of the people, without which economical self-sufficiency and political stability will remain a dream.

Adequate nutrition, water supply and drainage, good housing conditions and specific measures against communicable diseases are the foundations of physical fitness.

Poor Nutrition.

A world wide survey, conducted in 1954 under the W.H.O., showed that India was the most illfed country in the world. The Indian calory intake was one thousand six hundred, while that of Ireland was 3800 calories. In India, our State stands at tht foot of the ladder. Density of population and unemployment are responsible for this low nutritional status. The menacing pressure of population on land, which mounts up at 2 per cent per annum, is the most serious hurdle before us.

Starving school-child and its legacy.

More than 75 per cent of our school children are undernourished. The Board of Health of Calcutta University found that nearly 60 per cent of college students were in need of immediate medical attention. We are not better off. The heritage of malnutrition in infancy and childhood is carried to the college and later life. The only remedy to this is to establish proper balance between population and resources.

Family planning—the solution.

Industrialisation, heavy, medium or cottage level, may solve only a small fraction of this stupendous problem. The main remedy lies in family planning. One often hears strong views against family planning by religious and secular leaders "Children are God's gifts. Why prevent their coming? Who knows that a Gandhiji or a Buddha will not be lost?" This is what they say. It is of course an old slogan. With equal validity, we might retort "mosquitoes and snakes are nature's gifts, why destroy them". We have eliminated or controlled many natural processes by which the growth of population had for ages been kept under check, *i.e.*, epidemics and famines. If we can attack nature on one front will it be sinful to ask it to behave more rationally on other fronts, especially the family front? This is predominently a question for the State. But as custodians of the health of the people, the lead and implementation should come from the medical profession.

Protected water supply.

Good water suply and drainage are about the soundest investment on public health. The kind of water which 80 per cent of people of the country drink is sewage of varying grades of dilution, and it is an open invitation to all kinds of bowel diseases. It is also an insult to the culture about which we boast in and out of season. It is high time that a definite plan is drawn up by which at least 50 per cent of the people of the State can be provided with good drinking water during the Second Five Year Plan and the remaining 50 per cent in the following 5 or 10 years.

Housing.

Healthy houses are necessary not only for the prevention of diseases but for the development of a healthy psychological out-look. There is much truth in what Ruskin once said "man's mind is influenced by the house in which he lives". It was reported in the newspapers two years ago that Rs. 10 lakhs which this State got from the Centre for industrial housing had lapsed. This was not contradicted and therefore one should presume that the report was correct. If that was so, it was a grievous lapse. In case of housing and slum clearance also there should be a well thoughtout plan; and more than the plan, its steady and speedy implementation.

Food, water and housing are largely outside the immediate domain of the doctor. But they are the adverse currents against which the helpless doctor has to struggle all his life!

Prevention of diseases by specific measures.

Here the doctor comes more in his own, although others—leaders and the led—can do a lot to help or hinder the doctor. The conquest of communicable dis-

eases is one of the greatest miracles of modern age. The establishment of the infectious nature of the chief killers of man, plague, cholera, malaria, tuberculosis, etc., has helped many countries to completely eradicate them, or reduce them to negligible proportions. That happened in the first half of the current century. There is the proverb that the "proof of the pudding is in the eating". People the world over, have tasted this "Amrit" and their expectation of life has nearly been doubled thereby. That is why we are never tired of saying from the platform of the Association that no system of medicine without an integrated and internationally accepted preventive side can ask for perpetuation at public expense.

We in this State have made great strides in the preventive field. Smallpox is well controlled. Thanks to the assistance we are getting from the World Health Organisation, malaria is also on the high road to becoming equally rare.

Water supply and drainage contemplated in the Five Year Plan should bring bowel diseases under control. In D.D.T. we have a powerful weapon against filariasis, another of our scourges.

Tuberculosis—Enemy No. 1.

Tuberculosis threatens to remain enemy No. 1 among our infectious diseases, with an infection rate of about 1 in 100. In addition to clinics for detection and treatment of early cases, scattered throughout the State, we should also apply the two main principles which Modern Medicine has taught us, i.e., adequate provision for isolation of open cases, and immunisation.

Isolation Hospitals.

We have at present only about 500 beds for isolation of open cases of tuberculosis, while we need about 10,000 beds. I understand that provision is included in the second Five Year Plan to raise the number of beds to 5,000. It will be creditable if this target is reached.

B.C.G.

B.C.G. Vaccination is the specific method used for raising resistance against tuberculosis. The unfortunate controversy that has recently grown around B.C.G. makes it necessary that I should refer to it, especially because B.C.G. vaccination was started in India with the blessings of the Indian Medical Association. Apart from Madanapally, this State was the first to begin mass vaccination. That was in 1949; and we have so far done about 13 lakhs of vaccinations. In India about 200 lakhs have been vaccinated with B.C.G. and in Japan over 400 lakhs in about 7 years. There is no vaccination process which has undergone such intensive screening as the B.C.G. It was only after hundreds of thousands had been vaccinated in Scandinavia, Poland and Japan that we began the B.C.G. campaign. Surely people of these countries are not less patriotic or less scientific than ourselves.

The scare is about complications. With 13 lakhs of vaccinations done in six years, we in this State, should be in a position to say something on this. I requested the Surgeon General to find out from his medical officers if they had come across complications after vaccination. The replies received so far do not show the least justification for the recent scare. Apart from the unfounded nature of the scare, it is equally unfortunate that our exalted leaders should express opinions on matters which are really outside their competence.

DR. C. O. KARUNAKARAN, THE PRESIDENT OF THE CONFERENCE.

Maternity and child welfare.

Care of mother and child should also receive greater attention as fundamental public health measures. In England one out of 1,000 mothers die from child birth while 24 die in India. 116 out of 1,000 infants die in the first year while only 10 die in Soviet Union and 25 in Japan. Infant and maternal mortality in this State, is about 50 per cent of the corresponding figures for the rest of the country. Still we have to go a long long way if we are to come into line at least with Japan. It is to be hoped that the comprehensive programme initiated under the auspices of the W.H.O. will soon lead us to that goal.

Treatment of diseases.

The cure and control of diseases is the more spectacular and the more fascinating part of our service to society. The needs are urgent and the results, in most cases, immediate. But in this too we are far behind advanced countries of the world. There is all round qualitative and quantitative insufficiency both in personnel and in materials.

Medical Education.

We do not have in this State one well qualified doctor for 10,000 people! The goal placed before the country by the Bhore Committee is 1 doctor for 2,000. Even if we relax this a little and be content with 1 doctor for 3,000, the new State of Kerala will require 4,600 doctors—more than thrice the present number. If we produce 150 doctors annually, it will take 20 years to reach this mark. The population of the Madras State is only twice that of Kerala. They have already 4 medical colleges and a fifth is under consideration. Therefore a second medical college for this State is an urgent necessity and deserves the highest priority in our Second Five Year Plan.

Standards.

Starting of medical colleges reminds one of the warning recently sounded by the Central Health Ministry about deteriorating standards. That warning has also been given by the Indian Medical Council. But how are standards to be maintained? The most important condition is that there should be an adequate number of full-time teachers with leisure and facilities for research. The cream of medical graduates should be attracted to the teaching profession. This will never be possible unless attractive salaries are offered. The spirit of service and self-denial is good and should be encouraged. Indeed the teachers of non-clinical subjects are now practising that to the fullest. But when third class medical graduates earn sufficient remuneration from private prac-

tice to live in comfort, it will be idle to expect first class men to put on sack clothes and ashes and remain in class rooms and research laboratories. The solution to this will be to accept the proposals of the Union Government to create an All India cadre for medical teachers and give them at least the modest scales proposed by that Government.

Rural bias in students.

Lack of sufficient rural bias is one of the admitted shortcomings of the present system of medical education. A promising experiment is in progress here in this direction. This campus is surrounded by a rural area of 50,000 population and from the beginning of their college career, the students are brought into close contact with the poor villagers. I trust that this experiment will prove to be a reasounding success and will be introduced in all the Medical Colleges in India.

Conditions for the maintenance of high standards.

Danger of dilution. It will be meaningless to insist on high standards in our Colleges, if we allow substandard instruction to continue either openly in the name of modern medicine or under the cover of various other systems of medicine. That will amount to taking away with the left hand what is given with the right.

So long as medical subjects are taught, as they are taught to nurses, or to first aid students, there can be objection to that. But if the elements of modern medical subjects are taught to persons who will use that "dangerous little knowledge" for independent medical practice then those who give such instruction will run the grave risk of being guilty of collusion with quacks.

Registration.

Medical registration is one of the universally accepted procedures alike for the protection of standards for the protection of the people from quackery. We take pride that ours is the first State in India to have a Medical Registration Act, which makes unregistered practice a penal offence. We have separate Councils for different systems and registration under the appropriate Council is necessary to practice the system concerned. Mixed training will lead to attempts to circumvent this vital provision of the Act.

Shortage of Auxiliary personnel.

If we have only one doctor for 10,000 people our position with reference to nurses and other auxiliary personnel is even worse. We have only one nurse for 20,000. The place given to a modern School of Nursing in this campus holds out promise for the future. Let us hope that this school will soon become a College and there will be sufficiency of properly qualified nurses.

Hospital facilities: beds, equipment and medicine.

Doctors, nurses and other personnel make only one side of the picture. The service which the best trained doctor and nurse can render is governed to a large extent by the facilities available, hospital accommodation, equipment, medicine, diet, etc.

We have in this State about 7,000 beds but at the lowest estimate of 1 bed per 1,000 persons we require immediately 3,000 beds more. I trust that the addition of 500 beds annually during the Second Five Year Plan, will receive top priority.

Reduce costs by encouraging Indian manufacture.

We are glad that the budget provision for equipment and medicines has been nearly doubled during the current year. Still the complaint of shortage continues. The demand has gone up enormously. I am afraid that the financial resources of no State in India will permit it to allot for equipment, medicines and diet adequate funds to maintain the standards we wish to keep. If this difficulty is to be even partially overcome, the manufacture of drugs and hospital equipment should receive higher priority in our scheme of industrialisation than it has got so far. If Japan could make herself nearly self-sufficient in this respect there is no reason why we should not also do the same. I am aware that the production of D.D.T. and penicillin are among our major schemes. But there are several others to be taken up both in the public and private sectors. It is also possible that many a satisfactory cheap indigenous preparation may be substituted for costly imported products. But there is already a growing complaint about the undependability of several Indian products. It is in the interests of both the industry and scientific medicine that strict control should be enforced to ensure quality.

Insurance to reduce financial burden of medical relief.

It is often said, with a certain degree of plausible justification, that modern medicine is too expensive. May I ask if there is anything modern which is not somewhat expensive? The remedy to high costs is to devise means by which medical services of all kinds of the best quality can be made available to the lowest economic strata. This can be achieved by Health Insurance. That is how other countries have done it.

We have introduced a pilot insurance measure in this country called the Employees Insurance Scheme. That was inaugurated with our customary pomp and show, four years ago. We were told then that 8 of the industrial towns of this State would be brought under the scheme in 1954. In 1954 we were told that it would be coming this year. And the end of this year is well within sight. We do not know how far our insurance scheme is, and what it is like. A definite assurance had been given by the Central Government that in the implementation of the Health Insurance Scheme the Indian Medical Association would be consulted by State Governments.

Need for Advisory Bodies.

Advisory Committees, including representatives of the Medical Association, will be useful not only for Health Insurance work but also for the preparation and speedy execution of schemes under the Five Year Plan. Because of pressure of routine work even the most competent departmental head finds it difficult to prepare plans in time and with comprehensiveness. The reluctance to appoint advisory committees often exposes departmental heads and Government to the charge that they are anxious to push forward pet schemes which perhaps may be exposed by advisory committes. Both to protect themselves from such criticisms and for the speedy execution of the schemes it will be necessary to constitute expert advisory committees.

Fair conditions of service.

Self-preservation is the strongest primeordeal instinct of all living beings. Therefore no apology is needed for asking that doctors and other auxiliary personnel should be given sufficient remuneration for a life worthy of the profession. The salaries in this State are much lower than in other States. Nearly 80 per cent of our doctors, after 25 or 30 years of hard work, have to retire as Assistant Surgeons on a maximum of Rs. 250/- per mensem. My friends from other States may be amazed at this. Recently our Association presented a memorandum on this to the Pay Commission and the Government and met both the Pay Commission and the Minister for Health. How modest our demand was will be clear from the fact that we requested only for maximum salary of Rs. 400 for Assistant Surgeons. We do not know what is happening to our recommendations. There were inspired reports in the press about the recommendations of the Pay Commission in relation to other departments. It is not too late for the Government to consider the claims of medical officers in service fairly.

Housing conditions.

Medical officers and other staff in many a rural area are put to great suffering for want of suitable accommodation. This is a great handicap to their efficient work. Suitable quarters, adjacent to their hospitals or dispensaries, will enable them to do better work. Since the State can always collect reasonable rent from the occupants, provision of quarters has a double advantage.

Refresher courses.

The starting of the Medical College has made it possible to conduct refresher courses at regular intervals for the benefit of doctors who are working in rural areas. Fair conditions, like full pay study leave for two or three months should be granted to all doctors at intervals of five or six years.

Emotionalism versus reason.

Our great country is passing through a transitional period, pregnant with stupendous possibilities for good as well as evil. Attempts are being made in every sphere of activity to exploit the emotionalism of a strongly emotional people and panaceas of all kinds are being prescribed, often in the name of our ancient civilisation, and occasionally in the name of our present poverty. It will be a great national tragedy if this emotional upheaval is to influence matters which belong entirely to the world of cold reason.

2500 years ago Lord Buddha said "Do not believe anything because the written testimony of some ancient wise man is shown to you. Do not believe anything on the authority either of teachers or priests. Whatever accords with your own experience and after thorough investigation agrees with your reason, and is conducive to your own welfare and to that of all other living things, that accept as truth and live accordingly".

This supreme call led Bharatha Varsha to the heights of dazzling glory during the days of Asoka. To a nation that has adopted Asoka Chakra as its emblem there can be no higher gospel than what Buddha preached. If that will inspire all seekers of truth there can be no occasion for fanaticism or bitterness.

We, of this Association, stand dedicated, for ever to the service of mankind and search for truth. We hold out our hand in fellowship and collaboration to all others inspired by the same sublime ideals.

* * * * *

Resolutions passed at the conference :

1. Condolence resolution on the demise of Dr. S. John, Retired Surgeon General, Trivandrum, and Doctors C. V. Jacob of Trichur, P. Padmanabha Pillai and V. K. G. Menon of Trivandrum and Dr. Thomas Ninan (an old member of the Mavelikara Branch) were passed.

2. Resolved that the Travancore Cochin Medical Association notes with regret, that although the Travancore-Cochin Medical Practitioners' Act was passed in 1953, registration has not started because of the inordinate delay in passing the rules essential for registration. The Association therefore requests Government that the passing of the rules may be expedited.

3. The Association requests Government to accept that in future a recognised qualification in Modern Medicine should be essential for the practice of Medicine and that any person who wants to practice other systems of medicine should have taken an additional qualification in the system in which he wishes to practice.

4. Resolved to invite the attention of Government and the press to the fact that although the Central Government and State Government accepted, five years ago the term "Modern Medicine" and "Indigenous Medicine" instead of Allopathy and Indian Medicine, which were incorrect, the old terms were being repeated often in official documents and press reports.

5. Resolved that the Indian Medical Association be invited to hold the All India Medical Conference in Travancore in December 1956.

6. Resolved to request the Indian Medical Association to take urgent steps for the formation of a Medical Protection Society to render legal help to the members of the Association in situations which arise in the routine practice of the profession.

7. Resolved that an explanatory foot note be introduced in the Rules and Bye-laws of the I.M.A., to the effect that the term "Medical Men" wherever it occurred should be taken to mean Medical Men with recognised qualifications in Modern Medicine.

8. Resolved to request Government that in passing the final orders on the recommendation of the Pay Commission regarding the Revision of Salaries of the Medical Officers, the Memorandum presented by the Association be fully accepted as the proposals were the minimum that could be requested for.

9. Resolved to request Government to extend the date of option by Officers to have new scales of pay or to remain in the old scales till final orders are passed on the recommendations of the Pay Commission.

10. Resolved to request Government to order that no medical officer should be appointed in independent charge of any institution until he has had training for six months each in Medicine, Surgery, Midwifery and Forensic Medicine in a recognised institution.

11. Resolved to request Government to give daily allowance to the Medical Officers who are sent on relief duty for a period of less than two months' duration since it entailed the maintenance of two establishments for such officers.

12. Resolved that in view of the Resolution passed at Trichur last year regarding the Honorary Medical Officers of this State and in view of the Government orders to the effect that the system is to be discontinued, the Government may be requested to defer their decision till the Report of the States Reorganisation Commission is finalised.

13. Resolved that the Working Committee members of the State Branch be ex-officio members of the State Provincial Council.

14. Resolved to place on record the appreciation and thanks of the Association to the Editorial Committee for their selfless services in publishing a useful Medical Annual in a few months.

I.M.A. OFFICE-BEARERS FOR 1955-56

The following are the results of the elections to the offices and other appointments of the Indian Medical Association for 1955-56 :

President—Dr. A. C. Ukil (Calcutta) ; *Vice-Presidents*—Drs. P. R. Trivedi (Ahmedabad), G. V. Joshi (Hubli) and A. K. Bose (Calcutta) ; *Hon. General Secretary*—Dr. A. P. Mittra (New Delhi) ; *Hon. Jt. Secretaries*—Drs. J. N. Bahadur (New Delhi), Ved Prakash (New Delhi) and Sukomal Sen (Calcutta) ; *Hon. Asst. Secretaries*—Drs. R. Kesavan Nair (Trivandrum), D. S. Mehra (Delhi) and T. S. Balasubramanyam (Trichy) ; *Hon. Treasurer*—Dr. H. R. Dawar (Delhi) ; *Editor, Journal of I. M. A.*—Dr. P. K. Guha (Calcutta) ; *Asst. Editors*—Drs. C. L. Mukherjee and H. Chakravarti ; *Hony. Secretary*—Dr. R. Sinha ; *Other members of the Journal Committee*—Drs. A. D. Mukharji, A. K. Bose, A. Das, P. B. Mukherjee and S. C. Seal.

Mr. R. K. Deb was elected Hony. Legal Adviser at Calcutta and Mr. K. K. Raizada at Delhi. Messrs. G. Basu & Co. were appointed Auditors to the Journal at Calcutta and Messrs. Khanna & Annandhanam to the Central Office at Delhi.

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Editor—DR. P. K. GUHA, M.B., M.R.C.S. (ENG.), D.O.M.S. (LOND.)

APPEAL
For The
BUILDING FUND
Of the Central Office of the
Indian Medical Association, New Delhi

The Indian Medical Association has already completed 27 years of its life; the Association has now about 18,000 members on its rolls; and the activities of the Association have to be expanded in all useful directions. It is, therefore, essential for us, now, to have a Building of our own at the Headquarters of the Association in Delhi. We are glad to announce, that after years of negotiation, the Government of India have allotted us a plot of land measuring about 0.5 acre for this purpose, at a concession price (premium) of about Rs. 18,000 (plus 5% as ground rent) and the land has already been purchased. The Association Building will have to be completed within a period of 2 years and will have to conform in size and pattern to neighbouring buildings.

From the year 1950-51 appeals have been issued to the members of the Association to contribute generously to this fund. As the total estimated expenditure is likely to be about Rs. 8 lacs, every member has been asked to donate a minimum sum of Rs. 50/- in one or more instalments. Donations received so far from the members have not exceeded Rs. 18,000/-, though some members have donated Rs. 1,001/- each.

In view of the extreme urgency of the situation, may we request each and every one of those members of the Association who have not yet paid any sum as donation to this fund to kindly donate a minimum sum of Rs. 10/- to this fund (Hony. General Secretary, I.M.A. Central Office, Hanging Bridge, Daryaganj, Delhi-7—I.M.A. Building Fund) without any further delay (in any case, before March 1956), so that we may be able to collect Rs. 1,80,000/- to commence the construction of the building? I would also appeal to every Branch Secretary to kindly take active steps in the matter of collection of this first instalment from each and every member of his branch and see that the full amount per head per member in respect of all members of his branch are sent to the Central office, before March, 1956.

A. P. MITTRA
Hony. General Secretary
INDIAN MEDICAL ASSOCIATION

NEW DELHI,
January 1, 1956